State Library Agency Summative Report

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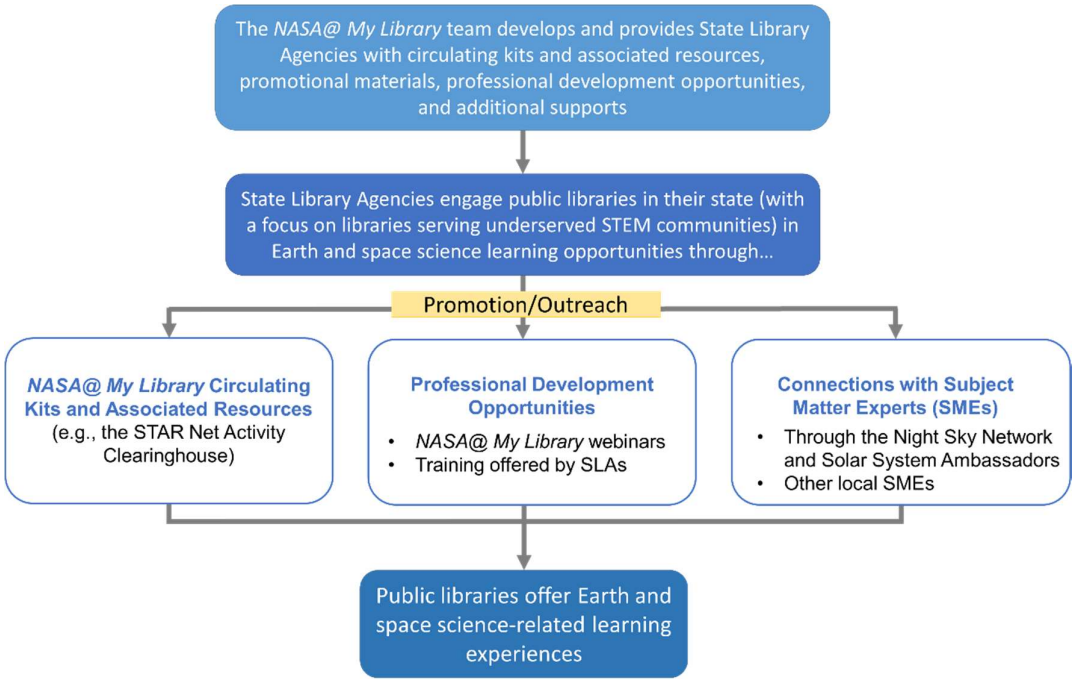
Background

The overarching goal of the *NASA@ My Library* project is to provide library patrons, especially those from audiences underserved and underrepresented in science, technology, engineering, and math (STEM), with Earth and space science-focused learning experiences. One way in which the project is achieving this goal is by partnering with State Library Agencies (SLAs) who promote and circulate kits and associated resources to support public libraries in their state in offering Earth and space science learning opportunities. In January 2018, four SLAs were selected by the *NASA@ My Library* project team to participate as pilot sites for testing this model of public library engagement. An additional 14 SLAs were on-boarded in December 2018, for a total of 18 participating SLAs.

Figure 1. The State Library Agency (SLA) Model of Library Engagement



This report presents summative evaluation findings regarding the implementation of the SLA model. Findings related to Kits and the Kit circulation process, from both the State Library and public library perspective, are presented first, followed by results pertaining to public library training, promotion, reaching underserved audiences, SME engagement, and the overall experience of SLAs. The report concludes with some areas of consideration.

Methodology

SLA representatives completed an online survey in October 2019 and participated in focus groups in December 2019. The purpose of the survey and focus groups was to understand the SLAs' experience with the project, including their successes and challenges with circulating kit promotion and management, public library training, reaching underserved audiences, and connecting with subject matter experts (SMEs). Additionally, SLA representatives were asked to share how participation in the project has influenced their organization and staff as well as share thoughts about how the SLA model could be improved in the future. Representatives from all 18 SLAs completed the survey and 15 SLAs participated in the focus groups, with an additional two SLAs submitting answers to the focus group questions in writing because they were unavailable during the focus group times.

Public libraries that received the Kits were asked to complete an online survey following each program that used *NASA@ My Library* resources. These surveys gathered information about program specifics (e.g., target audience, materials used) as well as general feedback on the public library's experience with reserving and using the Kit and associated resources. As of December 31, 2019, 359 libraries received Kit 1 and 313 libraries received Kit 2. Survey responses were received from a total of 203 libraries for Kit 1 and 102 libraries for Kit 2, for an overall response rate of 45%.

Table 1. SLA survey response rate

	Kit 1	Kit 2	Total
Total number of surveys completed	239	118	357
Number of surveys from individual libraries	203	102	305*
Number of libraries that received Kits	359	313	672
Response Rate	57%	33%	45%

**If an individual library received both Kits it was counted twice for the purpose of calculating response rate since they would be expected to complete each Kit survey at least once*

All evaluation instruments can be found in **Appendix A.**

Summary of Findings

SLA Kit Circulation

- A total of 240 Kits were available for distribution. The project team provided each SLA with one copy of Kit 1 and two copies of Kit 2, although one SLA chose to only distribute Kit 1. Therefore, in total, 52 Kits were provided by the project team and 188 copies were created by SLAs. Most SLAs produced a few duplicates of each Kit; however, some produced a large number of copies. When a large number of Kits (>10 copies of one Kit) were produced, SLAs tended to use an alternative distribution method in which each Kit was housed permanently or semi-permanently at public libraries.
- The stipend was very important to most SLAs for the purpose of duplicating the Kits, paying for shipping costs, adding additional materials (e.g., accessible materials) to their Kits, and supply replacement. Although some SLAs noted that they faced challenges accepting and using the money because of their organization's procurement procedures, many felt that they would not have been able to participate in the project without the stipend.
- Other uses for the Kits included public library training, programming at the State Library and outreach events, and circulation to school libraries.
- Most SLAs loaned their Kits to libraries for six weeks or less, especially during summer reading 2019 when the theme was "A Universe of Stories" and there was a high demand for Kits. A few libraries who were only able to keep the Kits for one week mentioned that they would have liked more time to maximize their usage of the Kits.
- Circulation challenges that SLAs faced included coordinating Kit transportation, purchasing items to duplicate Kits, and the need to replace consumable items in the Kits.

Use of Kits by Public Libraries

- Based on 357 surveys collected from public libraries that received an SLA Kit, a reported 16,218 patrons attended *NASA@ My Library* programs.
- A substantial portion (45%) of libraries receiving a Kit were located in rural communities.
- The majority of programs (>70%) were attended by elementary-aged youth, while more than half (57%) were attended by Pre-K youth. Families attended 68% of programs together.
- Aside from the books, the most used items from the Kits included UV Kid (70%), Magnetic Madness (54%), sorting games (51%), and the infrared thermometer (50%).

- Public libraries often supplemented the Kit activities and materials with other resources. Nearly half (44%) reported that they utilized the STAR Net STEM Activity Clearinghouse.

Feedback from SLAs on Kits and Related Resources

- All SLAs *agreed* or *strongly agreed* that the Kits and related resources were a good fit for public libraries in their state.
- 94% of SLAs reported that the Kit materials were *very useful* to their public libraries. Most SLAs also felt that the facilitation guides (78%) and unpacking and how-to videos (61%) were *very useful*. They explained that having a "program in a box" with supporting resources helped public libraries feel confident using the Kit and were also valuable to library staff who have limited time and budgets to create something on their own.
- The physical Kits were the main reason most SLAs joined the project; however, thinking ahead, SLAs were more likely to list associated resources such a how-to videos, resources from the Clearinghouse, and a list of supplies as being a "must have" for them if they were to participate in the future. During focus groups, SLAs explained that the greatest value came from being provided with a set of activities and supporting resources that they would not have the time or knowledge to research and curate themselves. However, they were quick to note that the physical materials are still valuable because it allowed them to immediately start working on the project and some SLAs would not have had the budget to purchase the materials on their own.
- SLAs emphasized that the Kits need to be more user friendly in order to increase interest in and use of the Kits. They suggested packaging materials for individual activities together or creating a start-up guide highlighting activities that are quick and easy to implement.

Feedback from Public Libraries on Kits and Related Resources

- The majority (90%) of public libraries reported that they were *very* or *extremely satisfied* with the support they received from their SLAs in the use of the Kit. Most were also *very* or *extremely satisfied* with the Kit reservation process (85%) and the support their SLA provided in accessing other resources (80%).
- Public libraries noted a few challenges in reserving and receiving the Kit such as having difficulty booking a Kit at the desired time, wanting to know more about the Kits before receiving them, and Kits arriving with missing or broken items.
- Most public libraries *agreed* or *strongly agreed* that they would like to receive similar Kits in the future (90%), and that the Kits were easy to use (87%).
- Public library staff appreciated the Kit materials and accompanying resources, noting that having ready-to-go activities from a reliable source made it easy for them to implement STEM programming in their library.
- Public libraries also mentioned that the Kit activities worked for, or could be adapted to work for, a variety of ages; however, some would still like to have more activities and books for very young patrons (e.g., 0-5 year olds).
- Public library staff also appreciated the wealth of programming ideas with clear, detailed instructions available on the STAR Net STEM Activity Clearinghouse. Of those who visited the Clearinghouse, 90% reported that they plan to use it for STEM programming in the future.
- Public libraries also found it useful to be able to easily see information about activities such as materials, cost, length, and age, and to be able to search for activities based on these items. A number of libraries mentioned that the Clearinghouse was easy to use; however, a few felt the navigation could be improved.
- The majority of public libraries (91%) *agreed* or *strongly agreed* that their patrons appeared to enjoy the programs. They shared many stories about how patrons of all ages were engaged in the programs, especially because they had the opportunity for fun, hands-on learning and discovery.

Others mentioned that the programs made patrons want to explore and learn more, and for a few, even sparked an interest in STEM-related careers.

Public Library Training

- Most SLAs provided in-person training to their public libraries on the use of the Kits. They reported that the in-person training was especially effective because the opportunity to see and interact with the materials helped to increase excitement and confidence around the Kit activities.
- A few SLAs were able to connect with SMEs to help facilitate their trainings. They mentioned that this was beneficial because the SMEs could answer librarians' questions and get them excited about sharing Earth and space science with others.
- SLAs also found the unboxing webinars and how-to videos to be a valuable resource for their libraries.
- SLAs felt that public libraries could benefit from additional webinars on topics such as specific programming ideas (e.g., connections to upcoming events), connections to standards, reaching underserved audiences, and sharing by other libraries who have already used the Kits.

Promotion

- Many SLAs noted that in-person promotion that included hands-on experience with the Kit was very effective at increasing interest in reserving the Kit.
- SLAs also reported that the websites they created for the project were beneficial because it provided a place to put links to various resources and a specific place to direct people interested in the Kits.
- While the SLAs found flyers and other promotional resources to be useful, some noted that their listservs do not allow them to attach documents, so having just a blurb that they can copy and paste would be very useful.
- A few SLAs felt that promotional flyers would be more beneficial for their public libraries to use to promote their program and that having a template flyer they could share with their libraries would be appreciated.
- A number of SLAs mentioned that they are facing the challenge of how to keep libraries interested in the Kits now that summer, with its focus on space, is over. They felt that an interactive calendar noting both recurring and special Earth and space science-related events, including links to associated activities and promotional blurbs, would be useful in understanding how to promote the Kits year-round.
- SLAs also felt it would be useful to receive periodic suggestions about ways they could update their Kits, for example, by adding an activity from the STAR Net STEM Activity Clearinghouse.

Reaching Underserved Audiences

- Nearly all SLAs (83%) reported that rural audiences is one population they were focused on reaching. Almost half (44%) also mentioned they were focused on reaching women and girls and/or the economically disadvantaged.
- All but one SLA *agreed* or *strongly agreed* that participation in *NASA@ My Library* helped them reach underrepresented audiences in their state. In order to reach underrepresented audiences, most SLAs reached out to libraries in specific areas or that serve certain communities.
- The most common underserved group that libraries reported specifically targeting were rural audiences. At least 20% of programs also targeted the economically disadvantaged or women and girls.
- A few libraries mentioned targeted promotional strategies such as translating promotional materials or promoting the Kits at bilingual story times.
- Many SLAs noted that they faced challenges determining what underserved groups to focus on and coming up with strategies to reach these groups. They would have appreciated more information

and suggestions about reaching underserved populations, especially from other SLAs who have experience with this.

- SLAs also felt uneasy about how to define and determine where underserved populations are located in their state and which libraries would serve these audiences. They felt that this would be better addressed at the local level where libraries would be more aware of the underserved populations in their area.

Engaging Subject Matter Experts

- SLAs tended to promote resources on connecting with SMEs to public libraries in their state, but rarely made strong connections themselves, with the majority of SLAs connecting with one or two organizations, if any. The most common challenge mentioned was that they had few Solar System Ambassadors or Night Sky Network members in their state.
- A few SLAs did have success connecting with SMEs, especially for training.
- Overall, SMEs led or co-led 12% of reported library programs. Public libraries reported engaging a range of SMEs including amateur astronomers, science performers, science teachers, University and Community College staff, planetarium and observatory staff, as well as a local weatherman, park ranger, and soil conservation representative. Seven libraries specifically mentioned connecting with a member of the Solar System Ambassadors or Night Sky Network.
- Of those libraries that brought in a local science expert, the majority (82%) reported that they did not receive help from their SLA in connecting with the SME.
- Overall, SLAs reported that they had the resources needed to connect public libraries in their state with SMEs and that libraries interested in connecting with SMEs were mostly able to do so.
- SLAs were especially interested in hearing from others about how they have connected with and worked with SME organizations. They would also appreciate more options or more direct contacts with SMEs in their particular state (e.g., state-specific information sessions with SME organizations, vetted contact lists of SME organizations in their state).

SLA Support and Training

- All SLAs but one *agreed* or *strongly agreed* that they received enough training and support from the *NASA@ My Library* team to implement the project.
- SLAs felt that direct emails were the most useful communication method, but most also found the monthly Zoom calls with the project team and other SLAs to be beneficial. SLAs noted that emails (e.g., from STAR Net or iMeet) were very useful because they allowed them to easily forward information about events and resources to public libraries.
- Many SLAs noted that they would have also liked to have an in-person training near the beginning of the project to learn about and gain hands-on experience with the Kits, make connections with other SLAs, and better understand project expectations and logistics.
- SLAs also noted that the unboxing webinars were useful to understand what was in each Kit; however, they needed to spend a lot more time getting hands-on experience with the Kit in order to be able to support their libraries.
- Other topics that SLAs would have liked more training on include connecting with SMEs, reaching underserved audiences, and tools and methods for circulation.
- One SLA suggested that future SLAs be paired with a "buddy" SLA that has previous experience in the project so that they can serve as a mentor and share their experiences.

SLAs' Knowledge, Confidence, and Interest in Supporting Earth and Space Science Programming

- All SLAs reported that, after participating in the project, they feel more confident in, knowledgeable about, and interested in supporting Earth and space science-related library programming.

- ❖ Most SLAs (89%) plan to continue circulating their existing Kits after the project ends. Many (61%) also plan to create and circulate additional Kits with new materials and activities.
- ❖ The project benefited SLAs regardless of prior experience with STEM Kit circulation. For those with little experience, it opened their eyes to the demand for circulating Kits in general and provided an opportunity to test the model of Kit circulation. For those with more experience, it diversified their offerings to include Earth and space science-related activities.
- ❖ Some SLAs also described how participation in the project has helped to increase their awareness of and interest in Earth and space science. Some shared that they now pay more attention when they see stories about NASA and have also become more aware of the Earth and space science-related events and educational resources.

Detailed Results

State Library Kit Circulation

Kit usage and circulation model

A total of 240 Kits were available for distributed by SLAs. The project team provided each SLA with one copy of Kit 1 and two copies of Kit 2, although one SLA chose to only circulate Kit 1. Therefore, in total, 52 Kits were provided by the project team and 188 copies were created by SLAs. Most SLAs created a few replicates of each Kit; however, a few produced a large number of copies. When a large number of Kits were available, the SLA tended to partner with other organizations and use a modified circulation process in order to make the process more manageable. For example, the SLAs with more than 10 Kits both worked with a group in their state that they had worked with in the past, in one case a local museum and in the other a local library cooperative that helped to promote, duplicate, and distribute the Kits. In these instances, the Kits either stayed permanently at the library and did not circulate or only circulated among a set group of libraries that were initially selected to receive Kits.

As another example, one SLA worked with the Regional Libraries in their state to circulate the Kits. Each Regional Library received a copy of the Kit in order to ease the logistics of managing and shipping Kits from one location.

Table 2. Duplicate number of each Kit available for distribution (n=18)

	Kit 1: Sun-Earth-Moon Connections	Kit 2: Be a NASA Detective
0 Kits	0	1*
1-2 Kits	3	3
3-5 Kits	8	8
6-10 Kits	5	5
>10 Kits	2	1
Range	**1-55**	**0-20**
Median	**4.5**	**4**
Total	**146**	**94**

**Respondent noted: "We decided to only do Kit 1 since it was the cheaper of the two kits, and seemed to have easier activities to facilitate."*

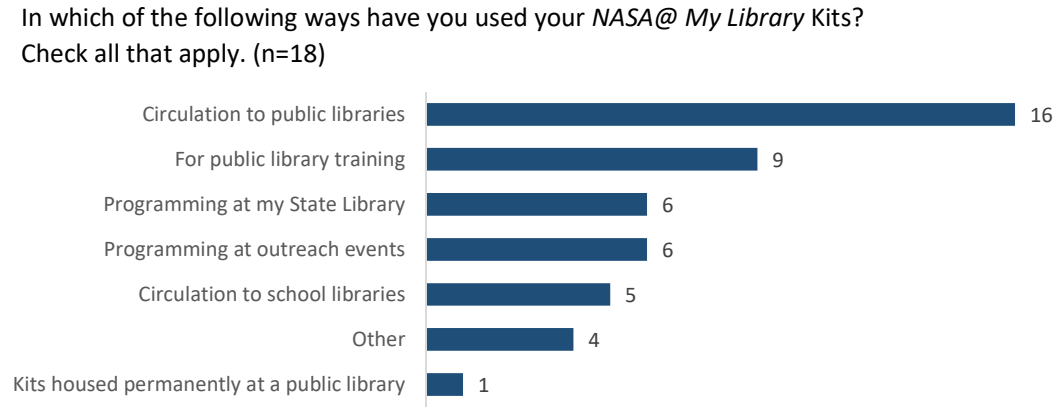
The stipend was very important to most SLAs for the purpose of duplicating the Kits, paying for shipping costs, adding additional materials (e.g., accessible materials) to their Kits, and supply replacement. Although some SLAs noted that they faced challenges accepting and using the money because of their organization's

procurement procedures, many felt that they would not have been able to participate in the project without the stipend. As one SLA stated,

> *"We wouldn't have been able to create as many Kits without the stipend…so it really expanded the reach and allowed anyone who wanted to participate to be able to participate."*

Other uses for the Kits included public library training, programming at the State Library and outreach events, and circulation to school libraries. Some SLAs are interested in exploring working with school libraries as a way to get additional reach. As one SLA described, *"During the no-cost extension I plan to focus on school libraries because those were folks we didn't reach out to intentionally at the beginning. Some stuff to get kids excited about learning for the second half of the year*."

Figure 2. In addition to circulation, half of SLAs also used the Kit for public library training.



Kit reservation process and loan period

Most SLAs loaned their Kits to libraries for 6 weeks or less. This was partly due to the high demand for the Kits, especially in light of the 2019 Summer Reading theme "A Universe of Stories." One SLA noted that they changed the loan period for all of their circulating Kits, including those not related to *NASA@ My Library*, from two months to six weeks, and have found that this amount of time seems to work well.

A few libraries who were only able to keep the Kits for one week mentioned that they would have liked more time to maximize their use of the Kits, with one library mentioning, *"We found it challenging to use all the activities within the week we had the kit."*

Table 3. Number of Kits available for distribution (n=18)

Loan Period*	# respondents
1-3 weeks	8
4-6 weeks	6
> 6 weeks	3
Did not implement a lending model	1

* *Some SLAs included the time needed to ship the Kit in the loan period (e.g., "The loan period is one week, however, we have to allow two weeks of travel time for each kit through our delivery system.") When indicated, the time for shipping was subtracted before categorizing the response.*

Kit circulation challenges

The SLAs shared some challenges they faced in the process of circulating their Kits including,

- The need to carefully think about and plan out Kit transportation, being realistic about how long Kits will be in transit. The also faced challenges when outside factors such as weather posed an unexpected transportation delay.
- The time needed to work through the procurement process when replicating Kits. Although SLAs mentioned that ideally they would like the opportunity to directly purchase a pre-made Kit from the project, they understand that this is probably not possible, so suggested that future SLAs be prepared for the time needed to duplicate Kits from the onset.
- Replacing consumable materials was also a challenge and some SLAs were considering removing the consumable items from the kits, instead providing a list of these supplies to their libraries and letting them know that they would need to provide their own supplies.

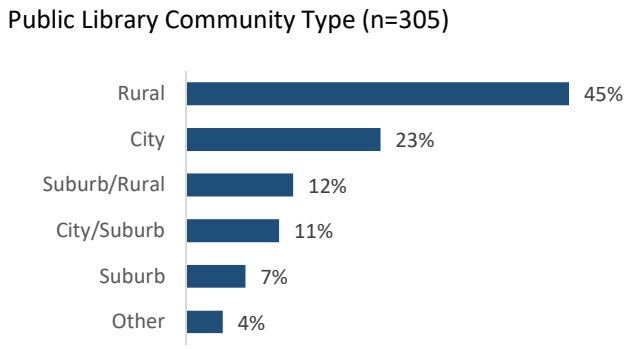
Use of Kits by Public Libraries

A total of 357 surveys were collected from public libraries that received a Kit. Although libraries were asked to complete one survey per program, a few used one survey to report on multiple programs.

Community type & program attendance

Nearly half of public libraries that received a Kit (45%) reported that they serve rural communities, while approximately one-quarter (23%) serve cities. Other populations mentioned include tribal reservations and an Air Force Base.

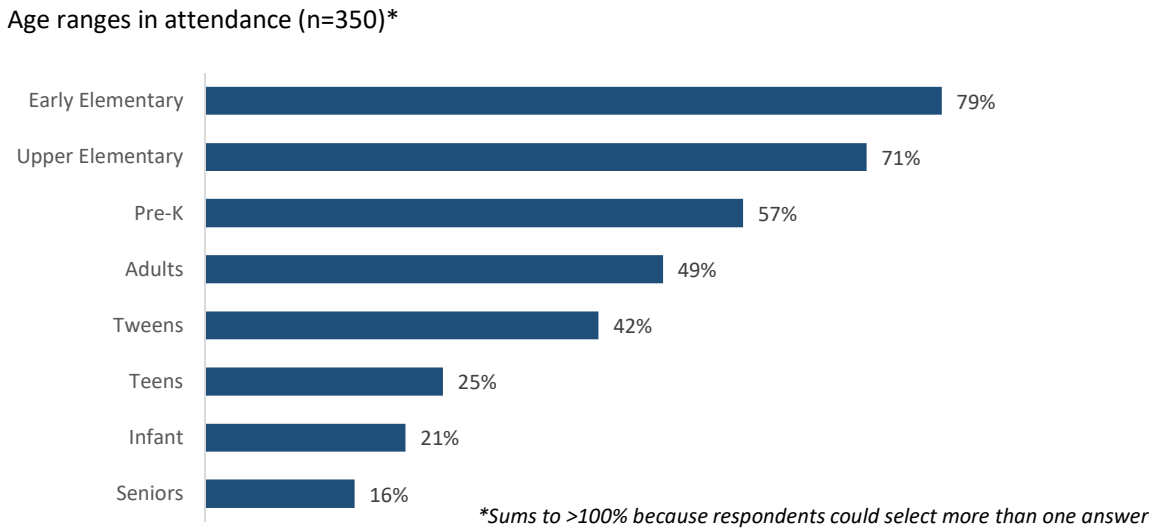
Figure 3. Nearly half of public libraries receiving the Kits served rural communities.



At libraries responding to the survey, a total of **16,218 patrons** attended *NASA@ My Library* programs.

The majority of programs (>70%) were attended by elementary-aged youth, while more than half (57%) were attended by Pre-K youth. Families attended together at 68% of programs.

Figure 4. Elementary-aged youth attended the majority of library programs.



Information about underserved audiences in attendance can be found in the section on Reaching Underserved Audiences.

Kit materials and other resources used

Aside from the books, the most used items from the Kits included UV Kid, Magnetic Madness, Sorting Games, and the infrared thermometer. These results are consistent with feedback from SLA representatives who noted that easy to use items or activities were most popular with their libraries.

Figure 5. UV Kid was the most used item from Kit 1.

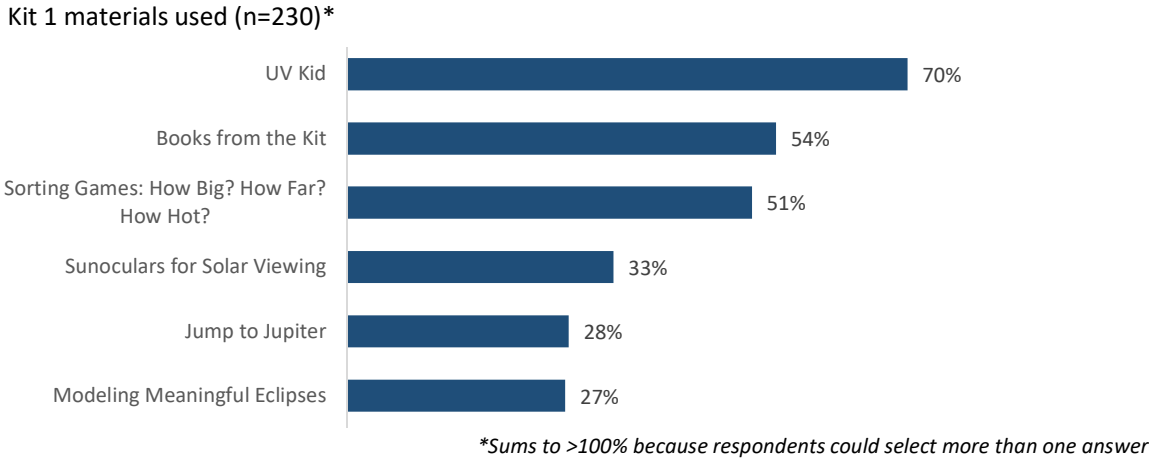
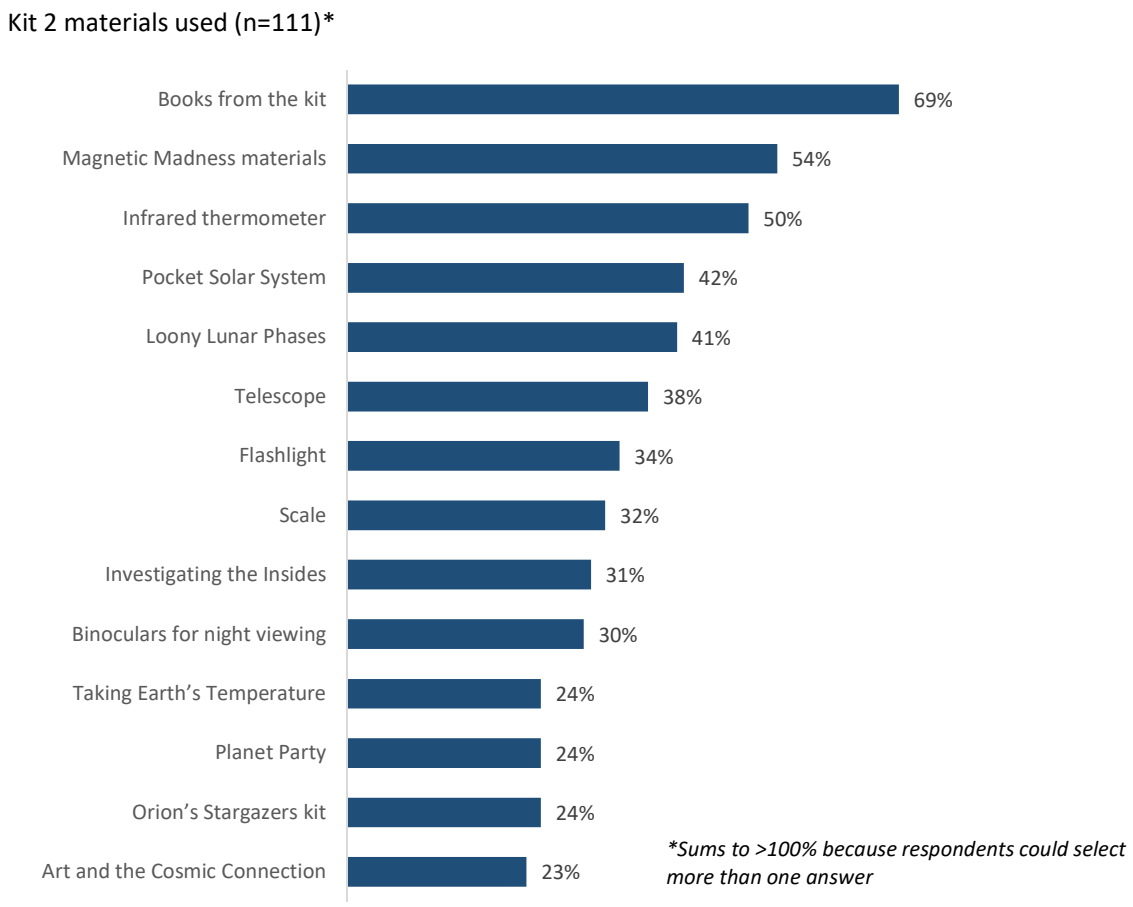
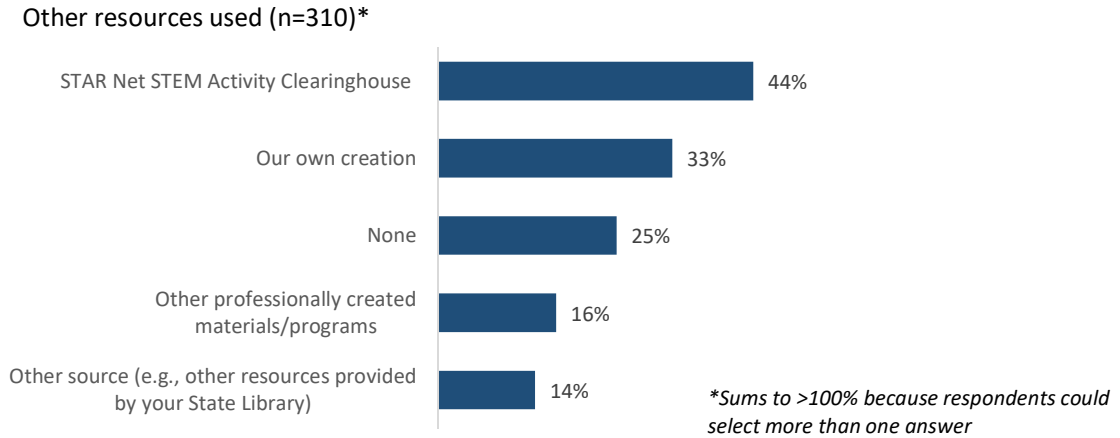


Figure 6. Books, Magnetic Madness, and the infrared thermometer were the most used items from Kit 2.



Public libraries often supplemented the Kit activities and materials with other resources. Nearly half (44%) reported that they utilized the STAR Net STEM Activity Clearinghouse. Libraries also reported that they incorporated additional hands-on activities or crafts, games, songs, videos, printables, and additional books that they either had on-hand or obtained from a variety of sources.

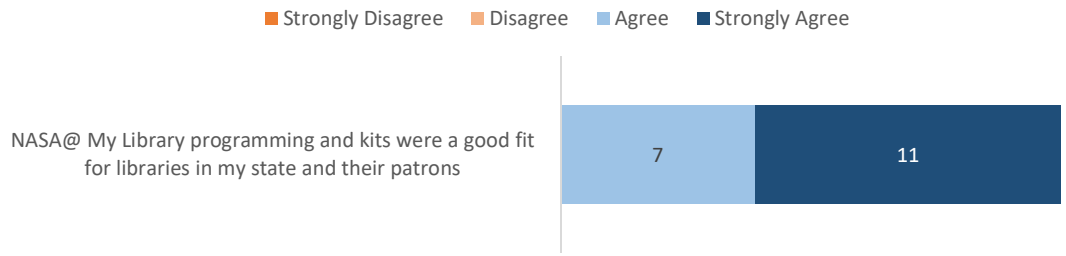
Figure 7. The STAR Net STEM Activity Clearinghouse was a popular resource for public libraries.



Feedback from SLAs on Kits and Related Resources

In general, all SLAs *agreed* or *strongly agreed* that the Kits and related resources were a good fit for public libraries in their state.

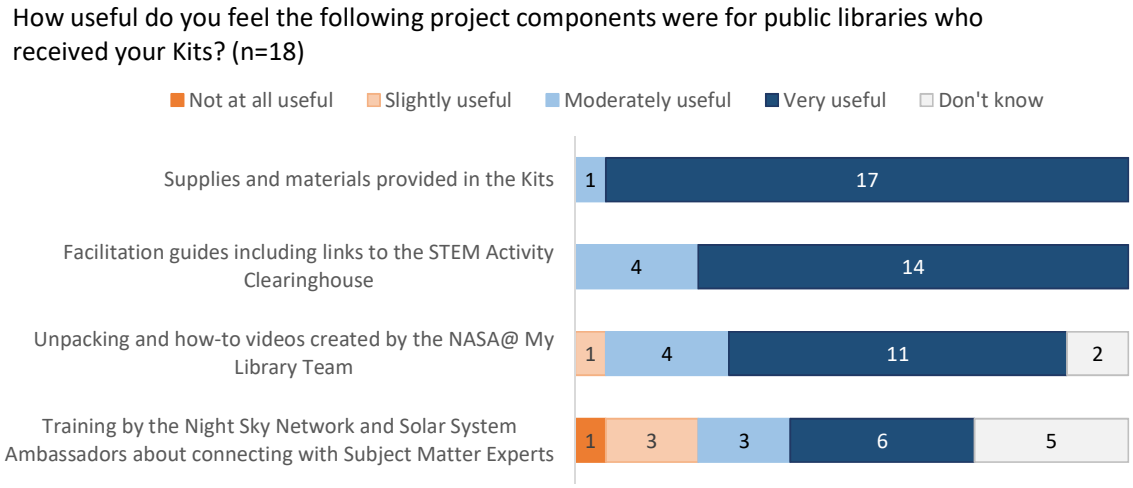
Figure 8. SLAs agreed that program was a good fit for their libraries



The associated resources and supports elevated the impact and usefulness of the Kits

All SLAs but one (94%) reported that the Kit materials were *very useful* to their public libraries. Other project components that the majority of SLAs viewed as *very useful* where the facilitation guides, including links to the STEM Activity Clearinghouse (78%) and the unpacking and how-to videos (61%).

Figure 9. SLAs felt that Kit materials and facilitation guides were most useful to public libraries.



SLA representatives explained that having a "program in a box" with a set of vetted activities, detailed instructions and facilitation tips, along with supporting resources such as the how-to videos and other Clearinghouse materials helped public libraries feel more comfortable using the Kits. Some SLAs noted,

> *"The fact that everything was there and ready to go and some of the activities basically had a script, lessened the anxiety for library staff because they knew it was coming from a trusted source and they could just follow the instructions provided."*
>
> *"Having the handbook in there and all of the steps available and having that backed up on the Clearinghouse with videos made it so that when they felt uncomfortable about their ability, they were able to go read it, look it up, and see somebody else doing it."*
>
> *"In the future, if some other organization says they have Kits, it'd be great to get those things, but unless you give the libraries the tools to know how to use those items they're kind of pointless."*

Additionally, public library staff have limited budgets and time, so providing them with a complete Kit increases the likelihood that they will conduct programs. As one SLA explained,

> *"Having the kit is really nice because it makes it that much more likely that [libraries] will do the activity. So many of our libraries operate on a shoestring budget that even if they want to do something it's hard for them to find the money to do it….I do think that in some cases now that people have done this kind of STEM programming, I think they feel more comfortable doing it, so when I send out resources related to that they're probably more likely to click on it and maybe incorporate that into their yearlong programming that they do…Now that people have done it and they've seen how fun it is and how not scary it is for them to do it themselves, I think that obstacle is a little less of an obstacle."*

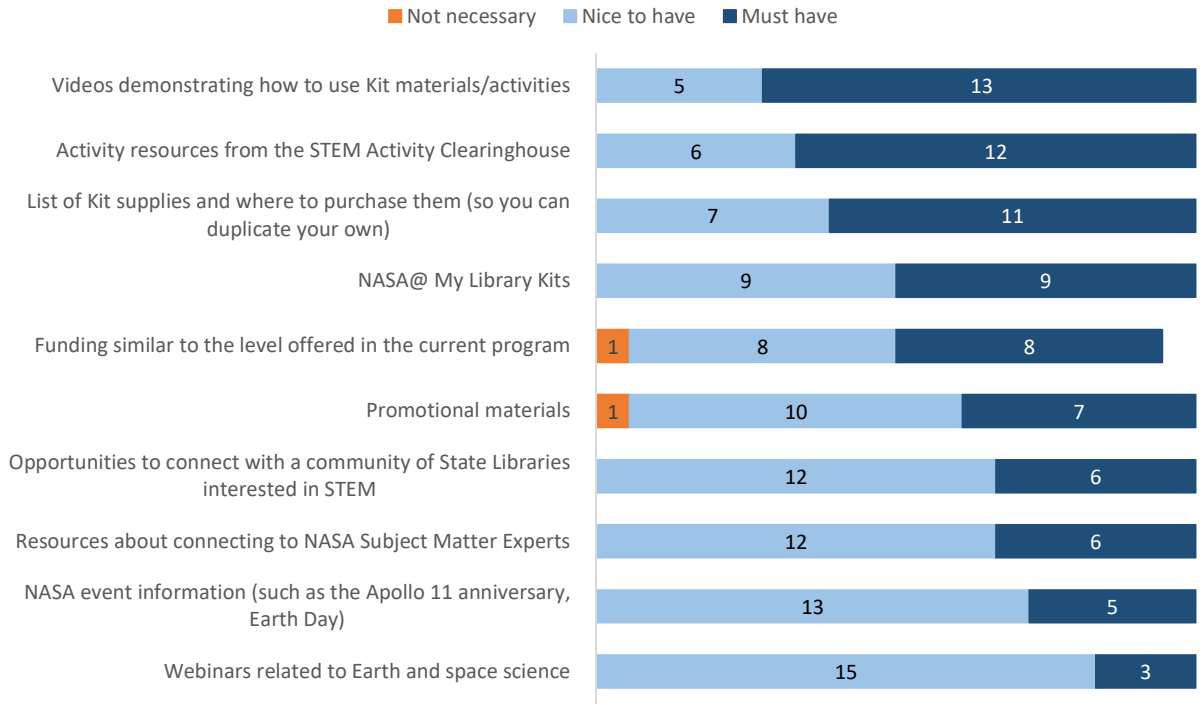
This also helps to explain a change in how SLAs viewed the physical Kits from the beginning to the end of the project. As shown in **Table 4**, all SLAs ranked the physical Kits as one of the most important factors in their decision to participate in the project. However, **Figure 10** shows that, at the end of the project, SLAs were more likely to list associated resources such a how-to videos, resources from the Clearinghouse, and a list of supplies as being a "must have" for them if they were to participate in the future.

Table 4. Physical Kits played the largest influence in the decision of SLAs to join the project

Question: Thinking back to before you joined the NASA@ My Library program, please rank the following program elements based on how much they impacted your State Library's decision to participate in NASA@ My Library.

Question	1st	2nd	3rd	4th	5th	Top 3 rank
Physical Kits to circulate to public libraries in your state	16	2	-	-	-	**18 (100%)**
Training resources (e.g., webinars, how-to videos)	-	5	7	5	1	**12 (67%)**
The stipend	1	4	6	2	5	**11 (61%)**
Resources for connecting with NASA Subject Matter Experts	-	6	3	4	5	**9 (50%)**
Connections to other State Libraries interested in STEM	1	1	2	7	7	**4 (22%)**

Figure 10. How-to videos, Clearinghouse resources, and a list of Kit supplies were most likely to be selected as "must have" project components



During focus groups, SLAs mentioned that after gaining experience managing and replicating the Kits, they feel more comfortable purchasing and packaging the physical materials themselves. They felt that the greatest value came from being provided with a vetted set of activities and supporting resources that they would not have the time or knowledge to research and curate themselves. As one SLA explained,

> *"I have a better idea of how I could recreate this now, but the difficult part is someone has done all of the research to put this together and has all of the supporting material. Some did all the legwork to curate everything."*

However, SLAs were quick to express that they still find a lot of value in being provided with physical Kits. Some mentioned that they do not have the budget to create their own Kits, so receiving the assembled Kits was the only way they would have been able to participate. Others noted that receiving pre-made Kits allowed them to get started right away, using the Kits for training and circulation. One SLA described,

> *"We would have no money do the program without the Kits. All the other stuff was fantastic too, was the icing on the cake, but if we want to actually send out Kits, if the goal is to get activities out in the public libraries, I think that having the Kits to build off of and the money to replicate those were extremely important and would continue to be important."*

Kits need to be user friendly

SLA representatives also emphasized the need to keep the Kits user friendly in order to increase interest in and use of the Kits. For example, many SLAs repackaged Kit contents so that specific materials for each activity were packaged together in one bag. In some cases SLAs had success circulating these individual activities as mini-Kits as well. Additionally, one SLA created a start-up guide with some ideas for activities

that are fast and easy, so that libraries could quickly try out an activity to increase their confidence and interest in doing more. As one SLA described,

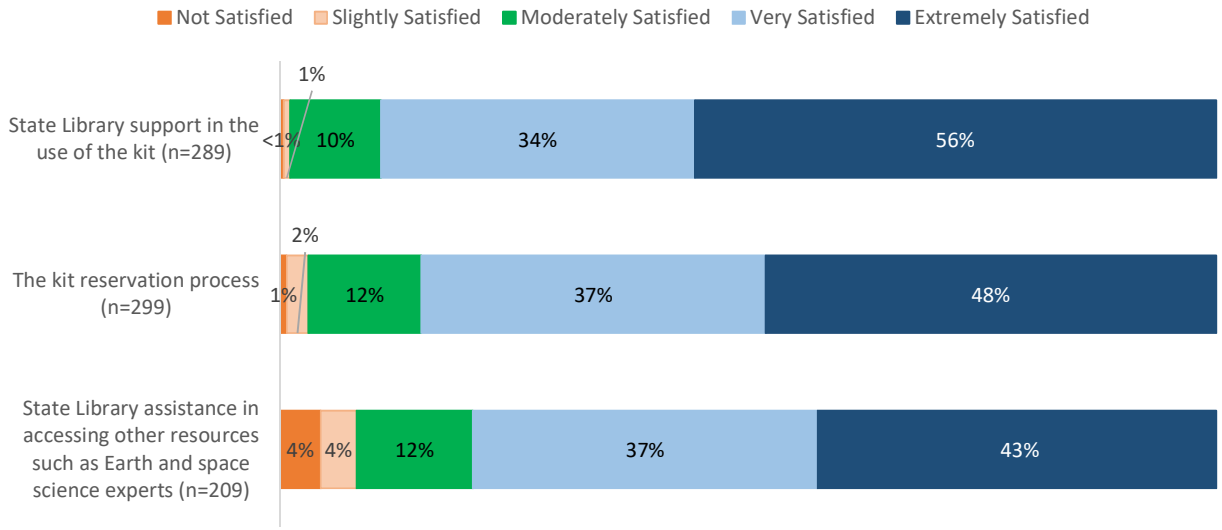
> *"The feedback we've gotten is there's so much there [the libraries] don't know where to start even after the training and other resources. So much stuff, so many activities, where do I begin?"*

Feedback from Public Libraries on Kits and Related Resources

The Kit reservation process and support from SLAs

The majority (90%) of public libraries reported that they were *very* or *extremely satisfied* with the support they received from their SLAs in the use of the Kit. Most were also *very or extremely satisfied* with the Kit reservation process (85%) and the support their SLA provided in accessing other resources (80%).

Figure 11. Overall, public libraries were satisfied with the Kit reservation process and support from their State Library



Some public libraries mentioned that they had difficulty booking and receiving a Kit at the desired time, especially during the summer when demand was very high. This made it complicated to incorporate it into their calendar when they finally received the Kit because they had limited time to look over the material and plan programming. As one public library noted,

> *"We are a rural library with a small staff and minimal resources so we plan our programs in advance. We received our kit just a few weeks prior to our programs starting which didn't give us much time to read over all the material that was provided. The kit was beautifully put together and had a lot of great information but for our situation I don't feel like we were able to utilize it in the way it should have been because of time and staff shortages."*

A few public libraries also felt that it would have helped to know more about the Kits ahead of receiving them in order to help plan their programs. For example, one noted:

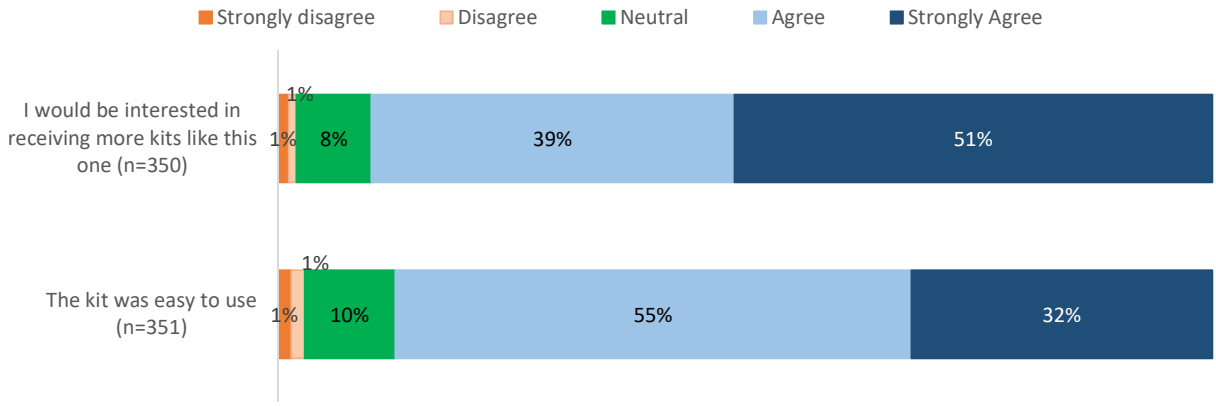
> *"The only thing that would be helpful is to have online information with more specific information about the activities included in the kit. We waited until the kit arrived to determine which activities we could use for our targeted audience."*

Finally, some public libraries noted that the Kits arrived with missing or broken items. Most missing items mentioned were consumables such as beads, batteries, or art supplies. Two libraries mentioned that the magnets in the Kit were broken.

Public library experience with Kits

Most public libraries *agreed* or *strongly agreed* that they would like to receive similar Kits in the future (90%), and that the Kits were easy to use (87%).

Figure 12. Public libraries strongly agreed that they would be interested in receiving more Kits



Public library staff appreciated the Kit materials and accompanying resources, noting that they having ready-to-go activities from a reliable source made it easy for them to implement STEM programming in their library. For example, public library staff mentioned:

> *"Having the kits makes it so much easier for us to incorporate STEM into our summer program. We are not scientists, but we still felt like we were able to give the kids a lot of good information that they can use and can also go out and explore on their own."*

> *"It was nice having someone else do all the program planning as for the activities and I just had to get it out of the box, study, set up, explain and help the youth, and then clean up (which was minimal). I did not have to take hours of planning and collecting. It was great! Thank you!"*

Public libraries also mentioned that the Kit activities worked for, or could be adapted to work for, a variety of ages; however, some would still like to have more activities and books for very young patrons (e.g., 0-5 year olds). For example, one library staff member explained,

> *"I think the Kit was very well put together, but to me it seemed to be more applicable to older elementary kids, tweens, and teens, and I mostly work with 0-5 year olds. The information in the Kit was just a little over their heads."*

Public library experience with the STAR Net STEM Activity Clearinghouse

Public library staff also appreciated the additional resources available on the STAR Net STEM Activity Clearinghouse. Of those who visited the Clearinghouse, 90% reported that they plan to use it for STEM programming in the future.

Figure 13. Most public libraries connected with SMEs without the help of their State Library.

Do you plan to use the Clearinghouse for additional STEM programs? (n=125)*

Public library staff appreciated the wealth of programming ideas with clear, detailed instructions that are available in the Clearinghouse. They mentioned that they used the Clearinghouse for both supplemental activities when they had the Kit as well as for additional programming ideas throughout the year. For example, one public library staff member described,

> *"I have done several activities from the STAR Net site during our summer reading kick-off and our summer reading programming. The tools provided for each activity on the STEM Activity Clearinghouse are wonnnnnnderful! I feel like I have a perfect blueprint for my programs and I feel confident that the information/science facts are correct and the activity has been tested with an audience. Everything we have done so far has gone very, very smoothly and I am looking forward to sharing more of your STAR Net activities throughout the summer and this academic year."*

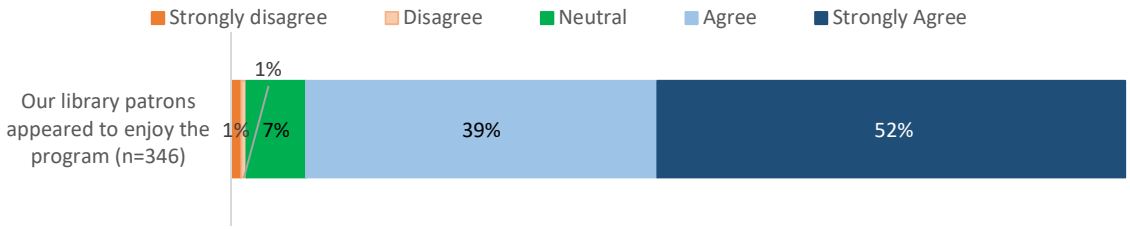
Public libraries also found it useful to be able to easily see information about activities such as materials, cost, length, and age, and to be able to search for activities based on these items. A number of libraries mentioned that the Clearinghouse was easy to use; however, a few felt the navigation could be improved.

Overall, public libraries find the Clearinghouse to be useful and would like to see even more content, activities, and how-to videos added in the future.

The patron experience

The majority of public libraries (91%) *agreed* or *strongly agreed* that their patrons appeared to enjoy the programs.

Figure 14. Patrons appeared to enjoy the library programs



Many public libraries shared stories about how patrons of all ages were engaged in the programs. They noted that the opportunity for fun, hands-on learning and discovery played a big role in patron engagement. For example, they shared,

> *"When we did the Jump to Jupiter activity, we set it up on one of the main side streets in town. This is a small area, so the solar system crossed the majority of town. The participants, who ranged in age from 4 to 70, were all blown away by the scale of the solar system. After the activity, word quickly spread and everyone in town has been talking about it, so people who were not able to participate in the activity still learned about the scale of the solar system through word-of-mouth."*

> *"We did the UV Kid activity as our kick-off to summer reading, and so many of the kids and families were excited about the remaining programs after having a great experience at the first. They loved testing different ways to block UV rays and enjoyed sharing their discoveries with each other."*

> *"This year most of our kids attended all of our programs. The learning plus fun activities did the trick. The day we made the wind streamers, after the kids came back in the library I was checking to make sure they were all inside, I saw one of the dads running with the streamer. He told me it was so cool. Not sure who was having more fun..."*

Public libraries also shared stories about how the programs helped to increase interest in and positive attitudes towards STEM, STEM learning, and STEM careers. They mentioned that the programs helped patrons learn STEM in a fun way, made them want to explore and learn more, and for a few even sparked an interest in STEM-related careers. Some stories they shared include,

> *"We received many positive compliments from our participants. One of the best ones was a little boy, who was so intrigued by the UV beads and flashlight. He kept coming back and coming back to play with the beads. After he came up to a staff member and said, 'I guess I made my decision.... I'm just going to have to be a scientist when I grow up!'"*

> *"We had a seasoned home-school mother who said, 'This was an incredible science program! Thank you!' I also heard (in reference to the UV kid project), 'This was fun. I think we're going to try this at home. Where did you get the beads?'"*

> *"One elementary school girl became very excited when I spoke to her about space during the program. She enjoyed the conversation so much she immediately started looking at and checking out books about space to learn more. It was wonderful to see her enthusiasm!"*

"Patrons loved the kit and asked for more chances to get to use the elements that came with the kit. They loved the fact that the Kit was sponsored by NASA."

"One parent thanked me for these programs during Summer Reading and said her child is now interested in researching STEM careers."

"One adult was so amazed with the night time program, that he wants to take his family to Pinson Mounds to look at the stars during one of their programs."

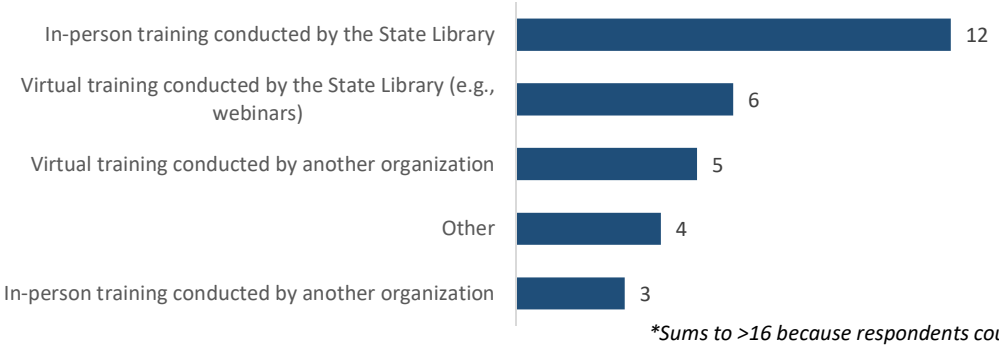
"In September we had a mom and her young son, age 7, come into the library looking for books on the moon. Mom told us that her son is obsessed with the moon ever since he learned about the phases of the moon at our July 20, Moon Landing party."

Public Library Training

Most SLAs provided in-person training to their public libraries on the use of the Kits. They reported that the in-person training was especially effective because the opportunity to see and interact with the materials helped to increase excitement and confidence around the Kit activities.

Figure 15. Most SLAs provided in-person training to libraries in their state on the use of the Kits.

What type of training did you provide to public libraries in your state on the use of *NASA@ My Library* Kits? Check all that apply. (n=16)*



**Sums to >16 because respondents could select more than one answer*

A few SLAs were able to connect with subject matter experts (SME) to help facilitate their trainings. They mentioned that this was beneficial because the SMEs could answer librarians' questions and get them excited about sharing Earth and space science with others. For example, one SLA representative shared:

"Having a trained scientist who was a capital-E expert come and speak to the librarians and kind of blow their minds, that inspired so many of them…That was what gave them the enthusiasm to go back to their libraries and provide this [programming]. To me it's so much about inspiring the librarians to go ahead and get engaged in the project. It's not just this is a great resource, it's that they were so amazed with the information that they learned that they couldn't wait to go back and tell other people about it."

Finally, SLA representatives praised the unboxing webinars and how-to videos created by the project team, explaining that they were very useful as both a refresher as well as when in-person training was not available. Some mentioned that this allowed librarians to become familiar with the contents of the Kits prior to checking them out, both to help facilitate planning as well as to avoid a situation where a library would check out a Kit simply to see what was included without plans to use it for programming. As one SLA representative explained:

"Knowing exactly what's in it and knowing how to use it makes it so much more likely that people will apply for it and actually use all of the different parts."

SLAs felt that public libraries in their state would benefit from additional webinars and online videos, and suggested topics such as:

- Additional how-to videos
- Specific programming ideas, including connections to upcoming events
- Information about connections to standards
- Information on reaching underserved audiences
- Sharing by other libraries who have already used the Kit materials

Promotion

Promotional strategies

SLAs utilized a variety of promotional materials and public libraries reported having heard about the Kits from a variety of sources.

Figure 16. SLAs found a variety of promotional materials to be valuable. (n=18)

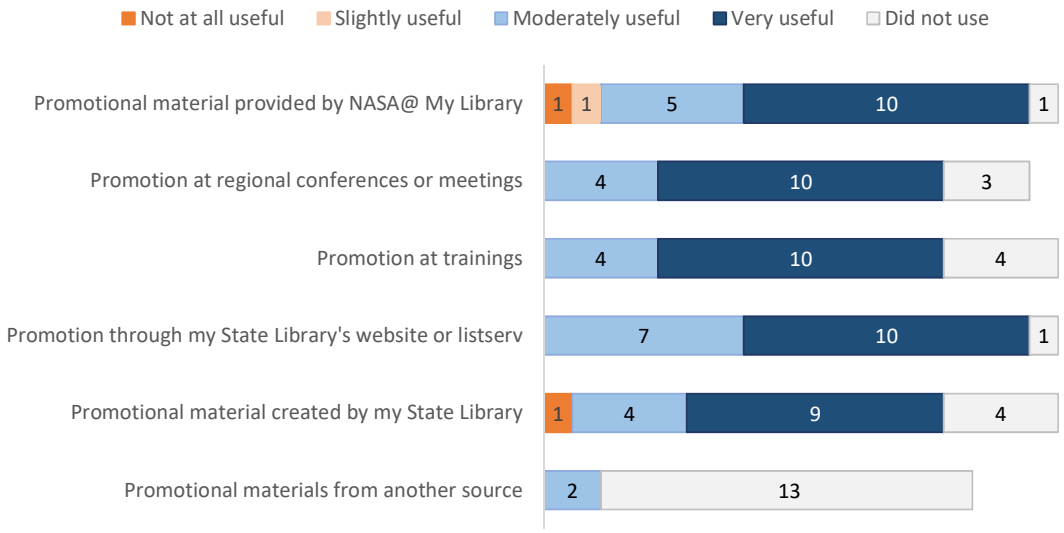
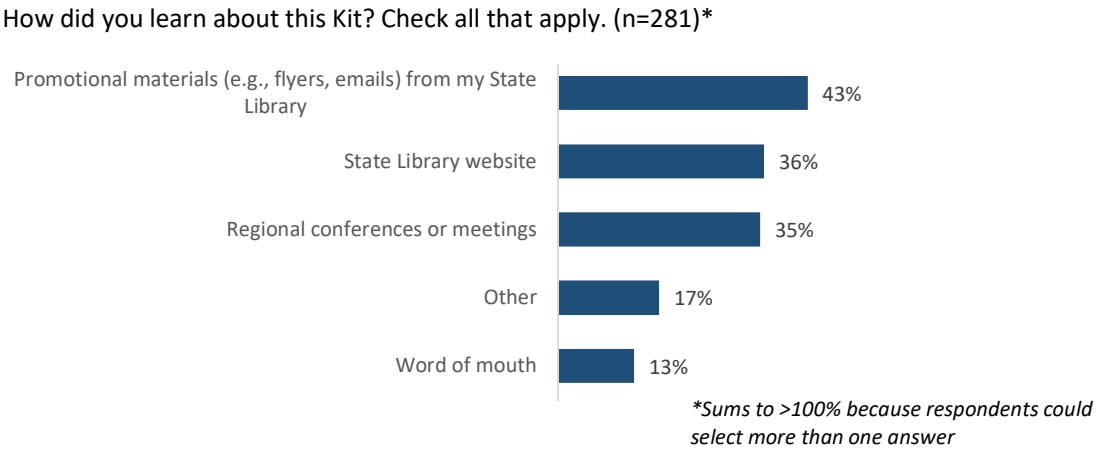


Figure 17. Public libraries mostly heard about the Kits from promotional materials, SLA websites, and in-person events.



Many SLAs noted that in-person promotion that included hands-on experience with the Kit was very effective at increasing interest in reserving the Kit. This includes in-person training as well as demos at conferences or other meetings. SLA representatives felt that experience with the Kit was important because librarians often felt intimidated by the topic or the amount of material in the Kit, so seeing how everything was used made them feel more confident and interested in implementing Kit activities. As one SLA representative described,

> *"Despite promoting and sharing resources, we didn't have a lot of interest in kits until librarians saw them in person and had someone show them a few activities during training. So there is some hesitancy to jump in from the public libraries."*

SLAs also noted that they found the websites they created for the project to be very beneficial. They mentioned that it was helpful to have a place to put links to various resources and a specific place to direct people interested in the Kits.

While the SLAs found flyers and other promotional resources to be useful, some noted that their listservs do not allow them to attach documents, so having just a blurb that they can copy and paste would be very useful. Additionally, a few SLAs felt that promotional flyers would be more beneficial for their public libraries to use to promote their program and that having a template flyer they could share with their libraries would be appreciated.

Other promotional strategies that SLAs felt worked well include:

- Making personal phone calls to libraries they felt could benefit from the Kits. This provides the opportunity to answer questions immediately.
- When a Kit is reserved, contacting libraries nearby to ask about their interest in using the Kit next.
- Allowing libraries to book Kits on the spot at in-person trainings, conferences, and meetings.
- Cross-promoting the Kit with other resources such as STAR Net webinars.

Challenges with sustaining interest in the Kits

A number of SLAs mentioned that they are now facing the challenge of how to keep libraries interested in the Kits now that summer, with its focus on space, is over.

Many SLAs mentioned that it would be useful to have an interactive calendar that notes future Earth and space science-related events, with links to specific activities from the Kits that could go along with those events. They also suggested including promotional blurbs and flyers in the calendar to make it easy to

promote to their libraries. Having a calendar of both recurring and special events would help them promote throughout the year.

Related to the idea of events, some SLAs mentioned that it would be useful to receive periodic suggestions about ways they could update their Kits, for example, by adding an activity from the STAR Net STEM Activity Clearinghouse. They felt that this could be a way to refresh the Kit and make it more relevant for upcoming events, hopefully leading to increased interest. A few SLAs specifically noted that they would like to have some suggestions for activities related to Earth Day.

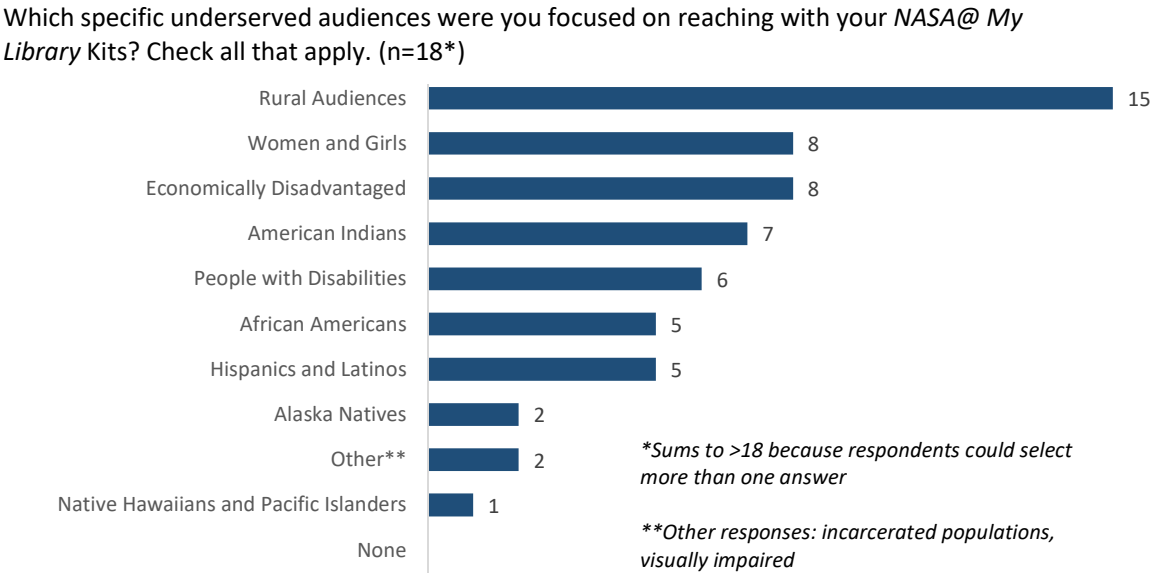
Finally, a few SLAs also suggested thinking about what libraries do as part of their typical school year programming and framing the Kits as something that could fit with those activities. For example, most libraries do community outreach and school visits, so the Kits could be re-framed as ready-made programs that they could use for outreach.

Reaching Underserved Audiences

Strategies used by SLAs to reach underserved audiences

Nearly all SLAs (83%) reported that rural audiences is one population they were focused on reaching. Almost half (44%) also mentioned they were focused on reaching women and girls and/or the economically disadvantaged.

Figure 18. Nearly all SLAs focused on reaching rural populations.



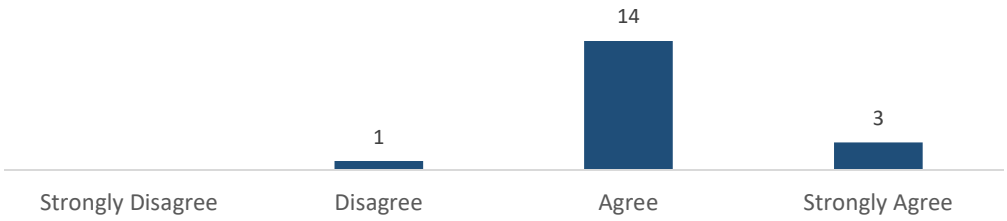
All but one SLA *agreed* or *strongly agreed* that participation in *NASA@ My Library* helped them reach underrepresented audiences in their state. Most specific strategies involved mechanisms to reach out to libraries in specific areas or that serve certain communities, including:

- personally contacting specific libraries either directly (e.g., by phone) or indirectly (e.g., targeted listservs)
- providing training in specific locations (e.g., rural areas)
- presenting at targeted conferences (e.g., the Indian Education Summit)
- demonstrating how the kits can be used with different audiences (e.g., demonstrating kit activities for the visually impaired)

- ❖ reserving a subset of their kits available specifically for circulation to targeted communities or giving priority to these communities
- ❖ including items for specific underserved audiences (e.g., the visually impaired, Native American communities) and location-specific resources (e.g., Crow and Blackfeet Astronomy guides)

Figure 19. Nearly all SLAs felt the project helped them reach underrepresented audiences.

Participation in the *NASA@ My Library* program has helped libraries in my state reach audiences that are underrepresented in STEM. (n=18)

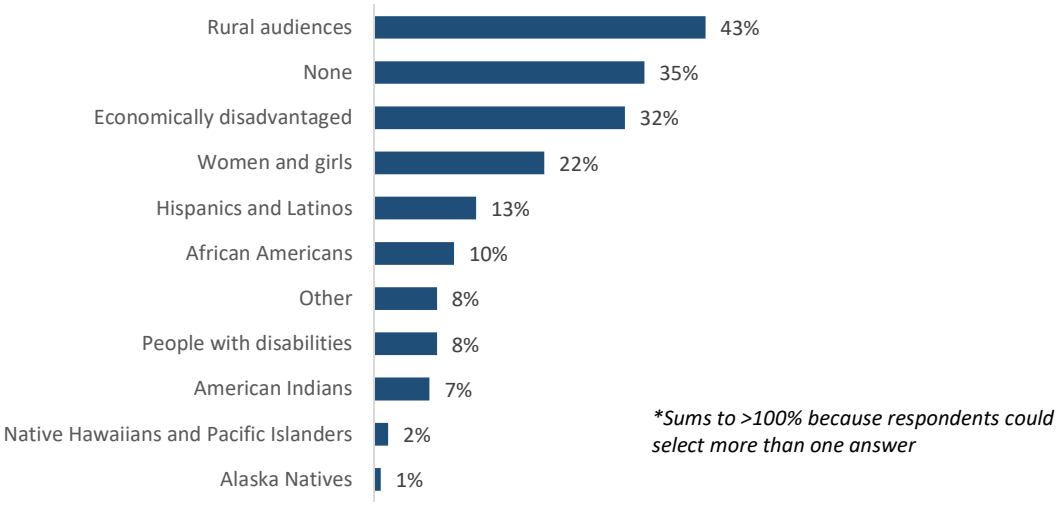


Strategies used by public libraries to reach underserved audiences

In line with the SLAs' focus on rural population, the most common underserved group that libraries reported specifically targeting were rural audiences. At least 20% of programs also targeted the economically disadvantaged or women and girls, which again aligns with the SLAs' reported focus.

Figure 20. Rural audiences were the most common underserved population at library programs

Which underserved audience(s) did you specifically reach out to for this program? Check all that apply. (n=318)*



A number of public libraries described that they have underserved populations in their community and so used strategies such as promoting through community groups (e.g., Boys and Girls Clubs) and schools, posting flyers out in the community, and promoting at free community events. They also used general promotional strategies such as radio, newspaper and free community newsletters, the library's website and newsletters, in-house posters and flyers, promotion at other library events, and word of mouth.

A few libraries mentioned targeted promotional strategies, including:

- ❖ Translating promotional materials

- Specifically highlighting female scientists and astronauts in their promotion and contacting their local Girl Scout troops
- Working with a community group that serves economically disadvantaged children, to coordinate bringing their youth to a program
- Handing out flyers at a girls-only coding class
- Hosting field trips from a reservation school and using these as an opportunity to promote *NASA@ My Library* programs
- Promoting at bilingual story times which were held at a location with a larger percentage of economically disadvantaged ESL families
- Advertising via the Native American Resource Center radio station

Challenges faced by SLAs in reaching underserved audiences

Many SLAs noted that they faced challenges determining what underserved groups to focus on and coming up with strategies to reach these groups. A number of SLAs mentioned that they would have appreciated more information and suggestions about reaching underserved populations, especially from other SLAs who have experience with this. It was suggested that a webinar or other type of training could be held before SLAs need to create an underserved strategy.

Others described unease with how to define and determine where underserved populations are located in their state and which libraries would serve these audiences. They felt that this would be better addressed at the local level where libraries would be more aware of the underserved populations in their area. For example, one SLA representative explained,

> *"This was the hardest part of the whole grant, trying to figure out how, at a state level, we could focus on the underserved population….This would have been easier at the local level because they know their community and the underserved areas. So trying to figure out specifically how to promote to the underserved audiences was the most challenging part."*

Some SLAs felt that a webinar where public libraries shared their experiences and strategies, similar to what was mentioned above for the SLAs, would be useful. Another SLA describe a strategy that they used where they worked with another agency in their state that serves underserved populations to determine where to focus efforts. This increased confidence that they were reaching appropriate areas because another agency had data to support locations to target.

Finally, a number of SLAs mentioned that it's difficult to know if the programs are actually getting to the target audiences since it is ultimately up to the public libraries to promote and reach underserved audiences with their programs.

Despite these challenges, one SLA representative mentioned that it was an important challenge to tackle and has made them think about their work as a whole, describing,

> *"It was a good challenge and I know it got me thinking about that in relation to the broader work I do at the State Agency, so not just how it applies to this program, but how it applies to all of the programs that I coordinate."*

Engaging Subject Matter Experts (SMEs)

Engagement of SMEs by SLAs

SLAs tended to promote resources on connecting with SMEs to public libraries in their state, but rarely made strong connections themselves, with the majority of SLAs connecting with one or two organizations, if any. The most common challenge mentioned was that they had few Solar System Ambassadors or Night Sky Network members in their state. One SLA also described having difficulty getting a response from their local astronomy groups.

Table 5. Number of SME organizations SLAs engaged as part of *NASA@ My Library* (n=15)*

	NASA-Funded organizations (e.g., Solar System Ambassadors, Night Sky Network, NASA Centers)	Other Earth and space science SME organizations (e.g., local astronomy clubs, planetariums, universities)
0 SME organizations	6	6
1	4	4
2	3	1
3	2	1
4	1	2
5	-	1

**If a respondent left an answer blank but, (1) recorded a number for one organization type but not the other or (2) left both answers blank but their open ended description made it clear that they did not engage with any SMEs (e.g., "SME's were handled by individual libraries), these blank responses were considered a "0 SME organization" response.*

A few SLAs did have success connecting with SMEs, especially for training. They noted that this was exciting for the library staff at their trainings. As one SLA representative described,

> *"Library staff loved meeting [SMEs] and were all blown away that [SMEs] are in the local community and they never tapped into them. I'm hopeful some connections were made and they will keep in touch. The group that came in was having just as much fun sharing their passion and knowledge as the library staff. We were excited to meet them and have them as part of our training. It was an element that enriched our workshops."*

Additionally, one SLA described that, although they had few SMEs in their state, they were inspired to look for other SME resources they could publicize to their public libraries. They explained,

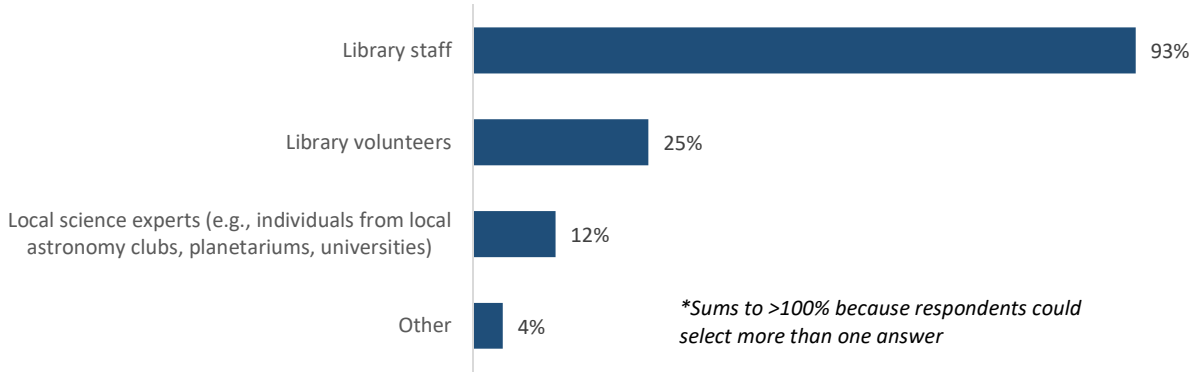
> *"On the plus side, knowing the different kinds of subject matter experts out there, being trained on that, pushed me to look at everything that NASA had to offer…I stumbled across the astronaut office and publicized that contact information around the state and libraries in [4 cities] absolutely ran with that, cooperated together [to bring in an astronaut]…and was an incredible hit."*

Engagement of SMEs by public libraries

Overall, SMEs led or co-led 12% of reported library programs. Public libraries reported engaging a range of SMEs including amateur astronomers, science performers, science teachers, University and Community College staff, planetarium and observatory staff, as well as a local weatherman, park ranger, and soil conservation representative. Seven libraries specifically mentioned connecting with a member of the Solar System Ambassadors or Night Sky Network.

Figure 21. SMEs led or co-led about one-tenth of library programs

Who led or co-led the program? Check all that apply. (n=352)*



Of those libraries that brought in a local science expert, the majority (82%) reported that they did not receive help from their SLA in connecting with the SME.

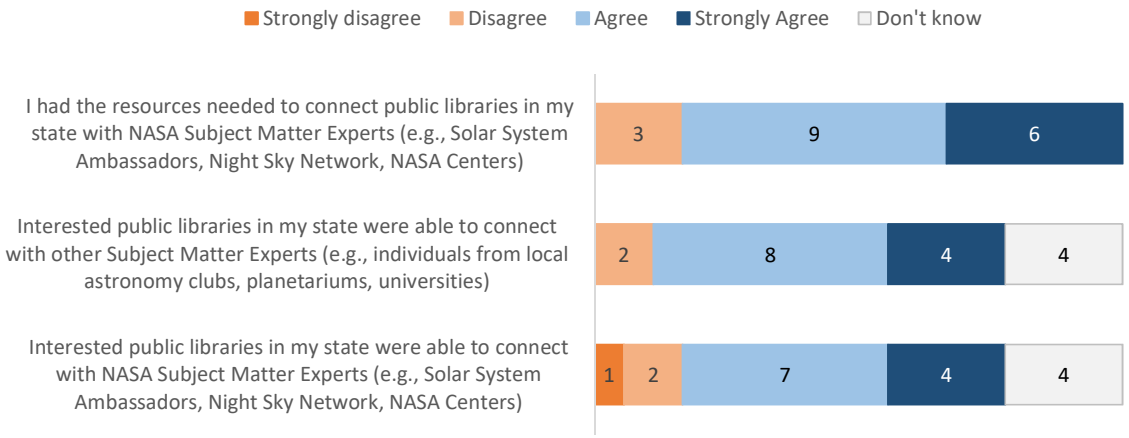
Figure 22. Most public libraries connected with SMEs without the help of their State Library.

If you brought in a local science expert, did your State Library help connect you with the local science expert? (n=38)

Suggestions from SLAs regarding SME engagement

Overall, SLAs reported that they had the resources needed to connect public libraries in their state with SMEs and that libraries interested in connecting with SMEs were mostly able to do so.

Figure 23. Most SLAs agreed that they had the resources to connect libraries to SMEs and that interested libraries were successful in making a connection.



However, SLAs provided a number of suggestions for how this component of the project could be strengthened in the future. SLAs were especially interested in hearing from others about how they have connected with and worked with SME organizations. They suggested providing SLAs and public libraries with examples of how specific libraries have connected with SMES, including how they did it and what they thought of the SME event. For example, a webinar could be conducted where library staff could share their experiences engaging SMEs.

Others mentioned mechanisms that would provide more options or more direct contacts with SMEs in their particular state. For example, they suggested hosting state-by-state information sessions with Night Sky Network representatives and Solar System Ambassadors from each state. Others suggested providing a vetted list of other SME organizations in each state that would be open to working with public libraries, including information for how public libraries can connect with these groups.

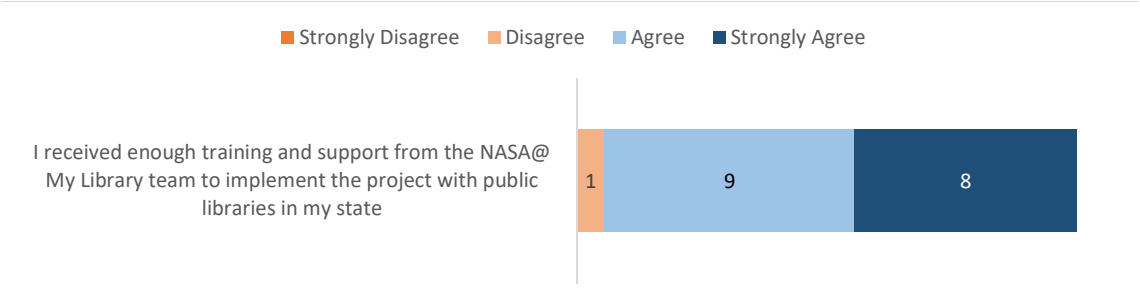
Finally, one SLA in a state with a large rural population was especially interested in the possibility of offering virtual SME visits as an option for their libraries.

Overall Experience of SLAs

SLA support and training

All SLAs but one *agreed* or *strongly agreed* that they received enough training and support from the *NASA@ My Library* team to implement the project.

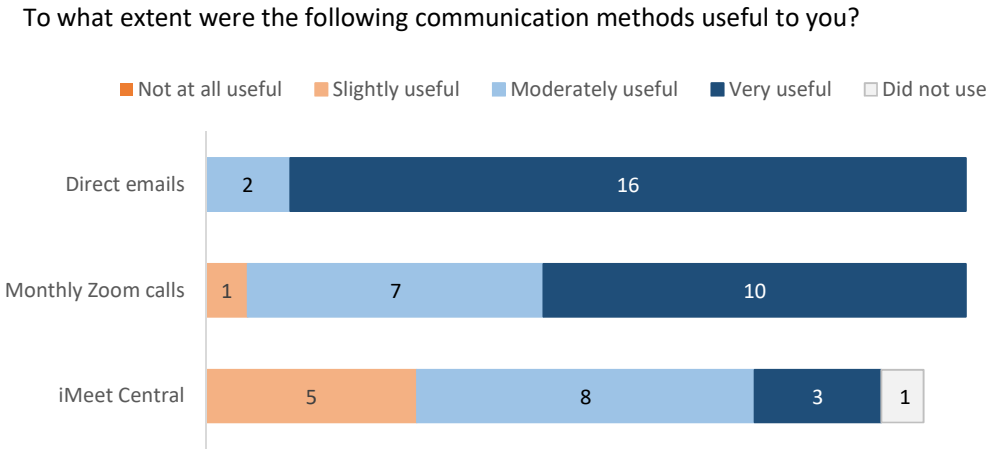
Figure 24. Nearly all SLAs agreed that they received enough training and support



SLAs felt that direct emails were the most useful communication method, but most also found the monthly Zoom calls with the project team and other SLAs to be beneficial. SLAs noted that emails (e.g., from STAR Net or iMeet) were very useful because they allowed them to easily forward information about events and resources to public libraries. Some also felt receiving these emails helped them "keep their pulse" on the project and Earth and space science topics. For example, one SLA representative described,

> *"Specifically being part of NASA@ My Library, I felt a lot more tied into the STAR Net libraries network than I had been before and that made it easier for me to promote activities and webinars to libraries through our state-wide listserv. So there's an ongoing STEM pipeline that perhaps wasn't there before we started the project."*

Figure 25. Direct emails were the most useful method of communication



Many SLAs noted that they would have also liked to have an in-person training near the beginning of the project to learn about and gain hands-on experience with the Kits, make connections with other SLAs, and better understand project expectations and logistics.

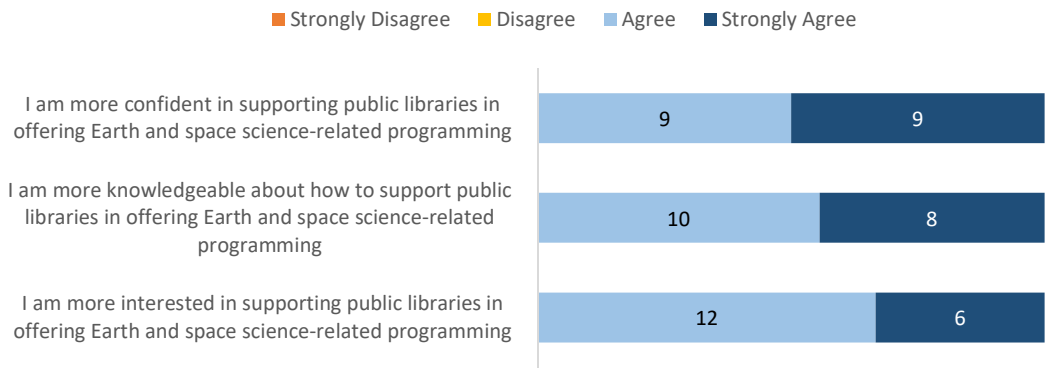
SLAs also noted that the unboxing webinars were useful to understand what was in each Kit; however, they needed to spend a lot more time getting hands-on experience with the Kit in order to be able to support their libraries. They mentioned that this could be partly addressed at an in-person meeting, but future SLAs should plan to set aside time to go through the Kits themselves to get to know the activities so they can address questions their libraries may have.

Other topics that SLAs would have liked more training on include connecting with SMEs, reaching underserved audiences, and tools and methods for circulation. One SLA suggested that future SLAs be paired with a "buddy" SLA that has previous experience in the project so that they can serve as a mentor and share their experiences.

SLAs' knowledge, confidence, and interest in supporting Earth and space science programming

All SLAs reported that, after participating in the project, they feel more confident in, knowledgeable about, and interested in supporting Earth and space science-related library programming.

Figure 26. All SLAs feel more confident, knowledgeable, and interested in supporting Earth and space science-related programming



Continued and expanded Kit circulation and resource sharing

Most SLAs (89%) plan to continue circulating their existing Kits after the project ends. Many (61%) also plan to create and circulate additional Kits with new materials and activities and also mentioned that they would continue to share STAR Net resources with their public libraries.

Figure 27. Most SLAs plan to continue circulating their existing Kits after the project ends

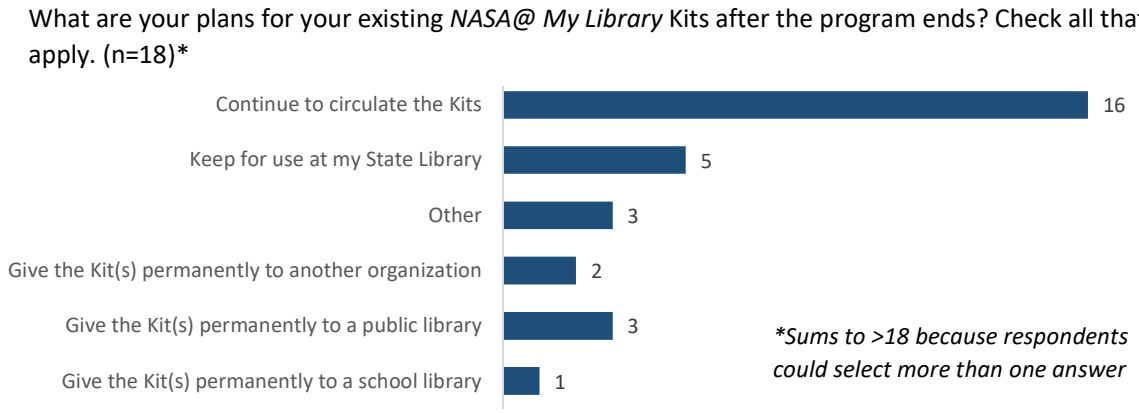
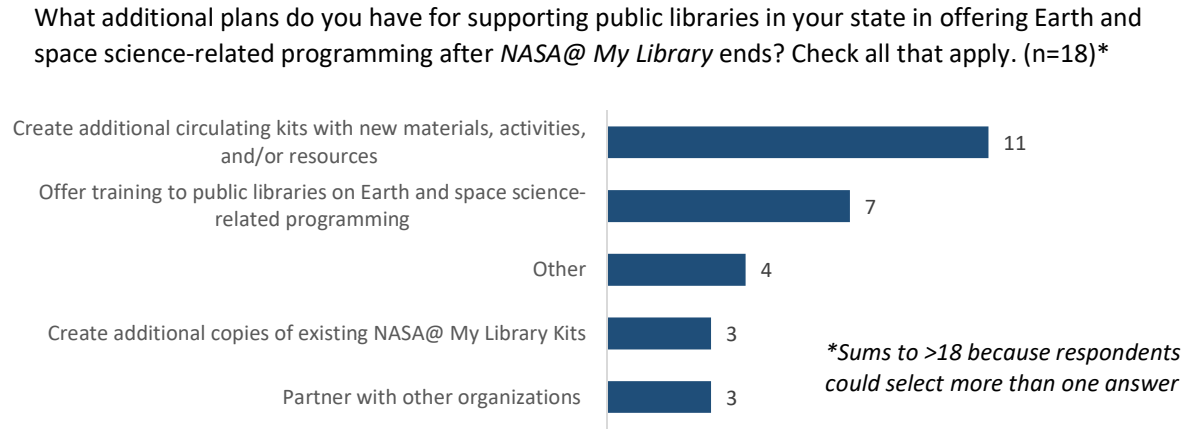


Figure 28. Many SLAs plan to create new circulating Kits after the project ends



Eight of the 18 SLAs had experience circulating STEM Kits prior to joining the *NASA@ My Library* project. Some SLAs with no prior experience mentioned that the project opened their eyes to the demand for circulating Kits in general. Some also used it as an opportunity to pilot a circulation system that they now plan to continue and hope to expand.

SLAs with prior experience circulating STEM Kits also benefitted. Most SLAs mentioned that they circulated kits that focused on engineering/making (e.g., KEVA planks, Makey Makey) or robots/coding (e.g., Dash and Dot, Ozobots), so this project was an opportunity to expand the diversity of their kits to include Earth and space science activities, tools, and materials. For one SLA, their participation in the project prompted them to do more programming at their State Library such as a "Know Your STEM" program with the local NASA Resource Center and a "tech petting zoo" where public libraries could try out various STEM activities. They explained,

> *"In our building we've always lent out kits, but never put programming around it… and we are looking to do more STEM-related programming in the future because those were huge*

hits and people really want to learn about this. It pushed it a little further in that now it's looking like one of our areas where we're looking to do more – STEM literacy."

Awareness of and excitement about Earth and space science

Some SLAs also described how participation in the project has helped to increase their awareness of and interest in Earth and space science. Some shared that they now pay more attention when they see stories about NASA and have also become more aware of the Earth and space science-related events and educational resources. For example, SLAs mentioned:

> *"I definitely became much more aware of NASA…as an educational resource to share, whereas previously I would have just been like NASA, space, that's cool."*

> *"[I became] more aware about all the programs NASA offers, for example the different events that are coming up, like the 50th anniversary of Earth Day, and the STAR Net resources. It has made me more comfortable and able to share those resources out with the libraries."*

One SLA also shared that they became so excited about the 50th anniversary of the moon landing that they organized a lunch and learn at their State Library, explaining,

> *"I was so excited about the 50th anniversary of the moon landing that I held a special training, a lunch and learn at the State Library with the videos that were provided. And the people in my building came to it and we had a huge turnout for that because they were so fascinated with the details of the moon landing. So anymore of this direct specific scientific expert telling what happened and why is amazing. It's filling in such huge gaps that people have."*

Conclusions and Areas of Consideration

Overall, both SLAs and public libraries were very satisfied with their experience in the project. They felt supported and found the Kits and associated resources to be useful and valuable. A large number of library patrons, including many from rural and economically disadvantaged populations, were reached, and public libraries shared stories about how the programs engaged their patrons in fun learning and discovery while also increasing their interest in STEM, STEM learning, and STEM careers. SLAs report having increased confidence in, knowledge about, and interest in supporting Earth and space science-related library programming and many have plans to continue or grow their circulating Kit programs.

Some areas of consideration that the team may wish to consider include:

- Consider ways to make the Kits more user friendly. For example, package materials in the Kits so that all materials for one activity are packaged together. A quick-start guide or other way to indicate which activities are "quick and easy" may also help library staff quickly find something to try and incorporate into their programming if they are short on time. After trying one or two of these activities, they may become more confident or interested in trying the more involved activities.
- Consider ways to support SLAs in providing in-person training to their public libraries. Many SLAs noted that hands-on experience with the Kit materials was key to helping libraries become more interested and confident in using the Kits. It also provides the libraries with an understanding of what's in the Kits before they receive them to help them plan their programming ahead of time and reduces the chance that someone will reserve a kit simply to see what it contains. Some states that received the NASA STEM workshops, provided by the project team, felt they were very valuable for attendees and is something that the team may wish to offer again in the future.
- Consider creating an interactive calendar or other resource that highlights both recurring and special events. Including links to associated Kit activities and promotional blurbs would help SLAs easily

capitalize on these events and use them as a way to promote the Kits. Activities not included in the Kits could also be shared as options if SLAs would like to refresh their Kits with a new activity.

- Consider having a webinar shortly after new SLAs join to present and discuss ideas for identifying and reaching underserved audiences. Many SLAs felt that this was a very difficult part of the project and would have appreciated hearing from others with prior experience about strategies that have worked from them. Hosting this webinar before SLAs need to create and submit an underserved strategy would allow them to gather some ideas to inform their strategy. A similar webinar from the public library perspective and aimed at public library staff could also be beneficial since SLAs felt that identifying and engaging underserved audiences may be better handled at a local level.
- Consider mechanisms to help SLAs identify and connect with SME organizations (e.g., hosting a webinar where others share ways they have had success working with SME organizations). Other suggestions included having state-specific information sessions with specific SME organizations such as the Night Sky Network or Solar System Ambassadors or providing a vetted contact list of SME organizations in each state.
- If possible, hold an in-person training near the beginning of the project to help SLAs learn about and gain hands-on experience with the Kits, make connections with other SLAs, and better understand project expectations and logistics.
- Consider creating a Kit specifically focused on very young children (ages 0-5) or including a guide specifically explaining how activities can be modified for this age group. Public libraries offer a lot of programming for this age group and would appreciate more instruction on how to adapt the Kit for use with young children.

Appendix A: Evaluation Instruments

SLA Representative Survey

About this survey

Thank you for taking the time to compete this survey! Education Development Center (EDC) is evaluating the NASA-funded *NASA@ My Library* project. As part of the evaluation, we are surveying State Library staff to understand how the project is being implemented, collect suggestions, and learn about the project's impacts at your State Library and public libraries in your state. If other individuals at your State Library participated in the program, you are encouraged to ask for their input as appropriate. The survey should take about 15 minutes. Your honest feedback will help shape *NASA@ My Library* so the project team can make it as rewarding as possible for participating State Libraries, public libraries, and their patrons. Your responses will be summarized and shared with the *NASA@ My Library* project team. We will not use your name or your State Library's name in anything that we share with the project team. If you have any questions, please contact Jennifer Jocz at **jjocz@edc.org**.

Please click Next to begin the survey and acknowledge you have read and understand the information above.

About your *NASA@ My Library* Kit Circulation

Q1 **Thinking back to before you joined the *NASA@ My Library* program**, please rank the following program elements based on how much they impacted your State Library's decision to participate in *NASA@ My Library*.
Drag and drop the choices below to create your ranking

_____ Physical Kits to circulate to public libraries in your state
_____ The stipend
_____ Training resources (e.g., webinars, how-to videos)
_____ Resources for connecting with NASA Subject Matter Experts
_____ Connections to other State Libraries interested in STEM

Q2 Please describe anything else not listed above that played a major role in your State Library's decision to participate in *NASA@ My Library*.

Q3 **Prior to participating in *NASA@ My Library***, did your State Library circulate hands-on STEM activity kits (e.g., science exploration sets like rock samples; building sets like KEVA planks; electronics kits like Snap Circuits or LittleBits; robots like Sphero or Ozobot)?

○ Yes

○ No

Q4 Please describe the kits you circulated prior to participating in *NASA@ My Library*.

Q5 How many of each *NASA@ My Library* Kit do you have for circulation?

- ○ Kit 1: Sun-Earth-Moon Connections _____
- ○ Kit 2: Be a NASA Detective _____

Q6 How long is the loan period to libraries? If the loan period is different for Kit 1 and Kit 2, please explain.

Q7 Please describe any additions, modifications, or adaptations you made to the provided *NASA@ My Library* Kits.

Q8 In which of the following ways have you used your *NASA@ My Library* Kits? (check all that apply)

- ☐ Circulation to public libraries
- ☐ Kits housed permanently at a public library
- ☐ Circulation to school libraries
- ☐ Programming at outreach events
- ☐ For public library training
- ☐ Programming at my State Library
- ☐ Other (please describe) _____

Q9 What type of training did you provide to public libraries in your state on the use of *NASA@ My Library* Kits? (check all that apply)

- ☐ In-person training conducted by the State Library
- ☐ In-person training conducted by another organization (please describe)
- ☐ Virtual training conducted by the State Library (e.g., webinars)
- ☐ Virtual training conducted by another organization (please describe)
- ☐ Other (please describe)

Q10 How useful do you feel the following promotional methods were for promoting the *NASA@ My Library* Kits to public libraries in your state.

	Not at all useful	Slightly useful	Moderately useful	Very useful	I didn't use this promotional method
Promotional material provided by *NASA@ My Library*	○	○	○	○	○
Promotional material created by my State Library	○	○	○	○	○
Promotional materials from another source (please describe)	○	○	○	○	○
Promotion at trainings	○	○	○	○	○
Promotion at regional conferences or meetings	○	○	○	○	○
Promotion through my State Library's website or listserv	○	○	○	○	○

Q11 Please describe any other promotional methods not listed above that you found useful

Q12 How useful do you feel the following project components were for **public libraries who received your Kits**?

	Not at all useful	Slightly useful	Moderately useful	Very useful	Don't know
Facilitation guides including links to the STEM Activity Clearinghouse	○	○	○	○	○
Supplies and materials provided in the Kits	○	○	○	○	○
Unpacking and how-to videos created by the *NASA@ My Library* team	○	○	○	○	○
Training by the Night Sky Network and Solar System Ambassadors about connecting with Subject Matter Experts	○	○	○	○	○

Q13 Please describe if any items in the Kits were especially useful or not useful to public libraries who received your Kits.

Q14 Do you have any recommendations for improving the facilitation guides in the future (e.g., length, format)?

Q15 To what extent do you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
I received enough training and support from the *NASA@ My Library* team to implement the project with public libraries in my state	○	○	○	○
NASA@ My Library programming and kits were a good fit for libraries in my state and their patrons	○	○	○	○

Reaching Underserved Audiences

Q16 Which specific underserved audiences were you focused on reaching with your *NASA@ My Library* Kits (check all that apply):

- ☐ African-Americans
- ☐ Alaska Natives
- ☐ American Indians
- ☐ Hispanics and Latinos
- ☐ Native Hawaiians and Pacific Islanders
- ☐ People with Disabilities
- ☐ Economically Disadvantaged
- ☐ Women and Girls
- ☐ Rural Audiences
- ☐ None
- ☐ Other (please describe) _____

Q17 Please describe any specific strategies you used to reach these underserved audiences in an intentional manner.

Q18 Please describe any **successes** you had reaching your target underserved audiences.

Q19 Please describe any **challenges** you had reaching your target underserved audiences.

Q20 Participation in the *NASA@ My Library* program has helped libraries in my state reach audiences that are underrepresented in STEM. (Select one)

- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

Engaging Subject Matter Experts (SMEs)

Q21 How many Earth and space science Subject Matter Expert (SME) organizations have **your State Library** connected with as part of *NASA@ My Library*?

- ○ Number of **NASA-funded organizations** (e.g., Solar System Ambassadors, Night Sky Network, NASA Centers): _____
- ○ Number of **other Earth and space science SME organizations** (e.g., local astronomy clubs, planetariums, universities): _____

Q22 Please describe the Earth and space science SME organizations your State Library has connected with as part of *NASA@ My Library* and how your State Library or public libraries in your state have worked with these SMEs.

Q23 **I had the resources** needed to connect public libraries in my state with NASA Subject Matter Experts (e.g., Solar System Ambassadors, Night Sky Network, NASA Centers)

- ○ Strongly Disagree
- ○ Disagree
- ○ Agree
- ○ Strongly Agree

Q24 To what extent do you agree or disagree with the following statements?

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
Interested public libraries in my state were able to connect with **NASA Subject Matter Experts** (e.g., Solar System Ambassadors, Night Sky Network, NASA Centers)	○	○	○	○	○
Interested public libraries in my state were able to connect with **other Subject Matter Experts** (e.g., individuals from local astronomy clubs, planetariums, universities)	○	○	○	○	○

Q25 Please describe any successes or challenges your State Library or public libraries in your state experienced connecting with Subject Matter Experts, or any suggestions for how this aspect of the program could be improved in the future.

Your Overall Experience with *NASA@ My Library*

Q26 To what extent were the following communication methods useful to you?

	Not at all useful	Slightly useful	Moderately useful	Very useful	Did not use
iMeet Central	○	○	○	○	○
Direct emails	○	○	○	○	○
Monthly Zoom calls	○	○	○	○	○

Q27 To what extent do you agree or disagree with the following statements?

After participating in *NASA@ My Library*…

	Strongly Disagree	Disagree	Agree	Strongly Agree
I am more **interested** in supporting public libraries in offering Earth and space science-related programming	○	○	○	○
I am more **knowledgeable** about how to support public libraries in offering Earth and space science-related programming	○	○	○	○
I am more **confident** in supporting public libraries in offering Earth and space science-related programming	○	○	○	○

Looking Ahead

Q27 What are your plans for your **existing *NASA@ My Library* Kits** after the program ends? (check all that apply)

- ☐ Continue to circulate the Kits
- ☐ Give the Kit(s) permanently to a public library
- ☐ Give the Kit(s) permanently to a school library
- ☐ Give the Kits(s) permanently to another organization (please describe)
- ☐ Keep for use at my State Library
- ☐ Other (please describe)

Q28 What additional plans do you have for supporting public libraries in your state in offering Earth and space science-related programming **after *NASA@ My Library* ends**? (check all that apply)

- [ ] Create additional copies of existing *NASA@ My Library* Kits
- [ ] Create additional circulating kits with new materials, activities, and/or resources
- [ ] Offer training to public libraries on Earth and space science-related programming
- [ ] Partner with other organizations (please describe the partnership)
- [ ] Other (please describe):

Q29 What types of Earth and space science-related webinars could the STAR Library Network (STAR Net) offer that public libraries in your state would find useful?

Q30 If you were to participate in *NASA@ My Library* again in the future, how important is it that the following project components be included?

	Not necessary	Nice to have	Must have
Funding similar to the level offered in the current program	○	○	○
NASA@ My Library Kits	○	○	○
List of Kit supplies and where to purchase them (so you can duplicate your own)	○	○	○
NASA event information (such as the Apollo 11 anniversary, Earth Day)	○	○	○
Activity resources from the STEM Activity Clearinghouse	○	○	○
Resources about connecting to NASA Subject Matter Experts	○	○	○
Webinars related to Earth and space science	○	○	○
Videos demonstrating how to use Kit materials/activities	○	○	○
Promotional materials	○	○	○
Opportunities to connect with a community of State Libraries interested in STEM	○	○	○

Q31 Please describe any other ways the *NASA@ My Library* Kits or Kit program model could be improved in the future.

SLA Representative Focus Group Protocol

Administration Notes

Due to time constraints (1 hour focus groups), different focus groups will concentrate on certain topics, with some core questions asked during all focus groups. The table below shows how topics will be distributed across the focus groups.

	FG1	FG2	FG3	FG4	FG5 (if needed)
Your SLA's Experience (focus on Kits overall)	X	X	X	X	X
Training	X	X	If time	If time	Decided based on previous FGs
Promotion	If time	If time	X	X	
Underserved Audiences	If time	If time	X	X	
Engaging SMEs	X	X	If time	If time	
Looking to the Future (focus on Kit suggestions)	X	X	X	X	X

SLAs will be assigned to focus groups based on availability.

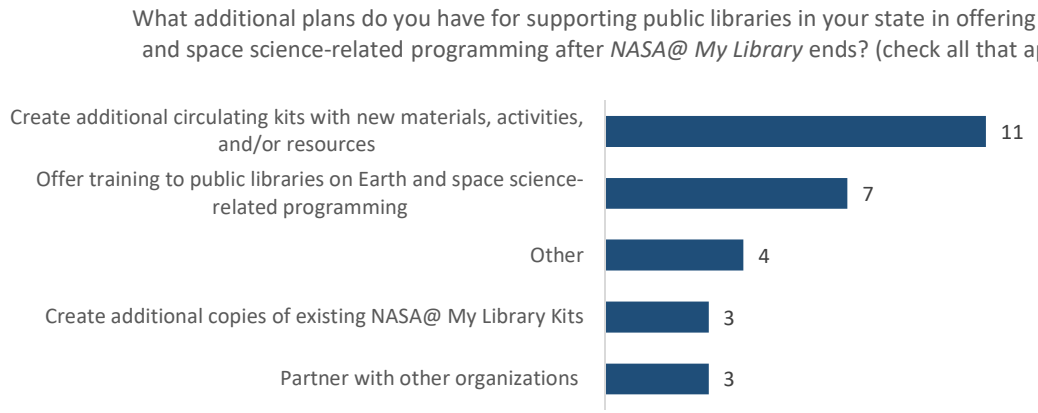
Survey results will be provided (and shown during the focus group) when necessary to provide context for the questions. Focus group questions will be provided in advance.

Introduction

Thank you for agreeing to participate in this focus group. As part of EDC's evaluation of the NASA@ My Library *project, we are talking with representatives from the State Library Agencies (SLAs) about their experience in the project. I want to emphasize that the purpose of this interview is not to evaluate you or your work, but to capture what we have learned about the implementation and outcomes of NASA@ My Library project and this component in particular. Responses from these focus groups will be summarized and shared with the NASA@ My Library project team. We won't use your name or your organization's name in any reports. To facilitate our note-taking, we ask your permission to audio record our conversation.*

Your SLA's Experience (Asked during all FGs)

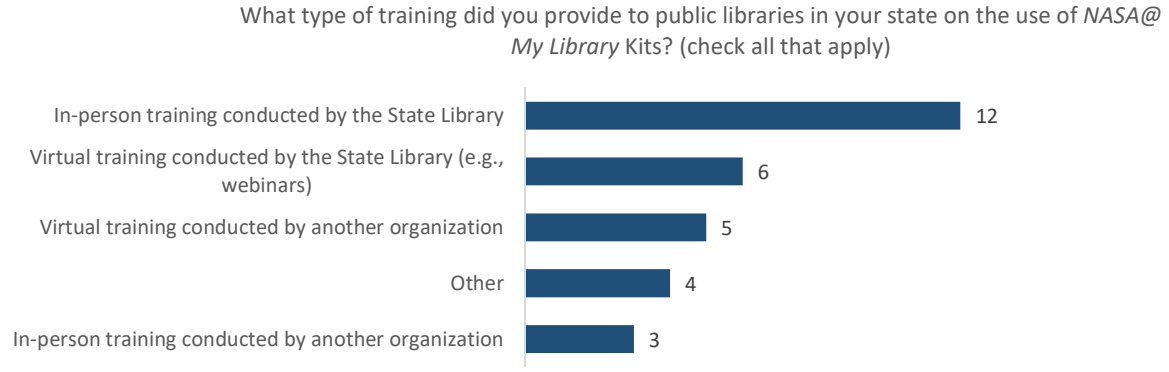
1. On the survey, many SLAs reported ways in which they will continue to support their public libraries in offering Earth and space science-related programming after *NASA@ My Library* ends (see figure below). In what ways has being involved in the *NASA@ My Library* project, especially the Kits, enhanced your State Library's abilities to support Earth and space science programming at your public libraries? Are there any ways that you feel differently (e.g., interest or confidence in supporting STEM-related public library programming) or are doing things differently as a result of your participation in this project?



2. What training or support provided **to you** by the project team has been most useful and why? What other training, supports, or resources could the project provide **for future SLAs**?
    - **Prompt**: Would training on the Kit topics and materials have been beneficial? If so, how would you have liked to receive this information (e.g., in-person training, virtual training, how-to videos)?

Training (Asked during 2-3 FGs)

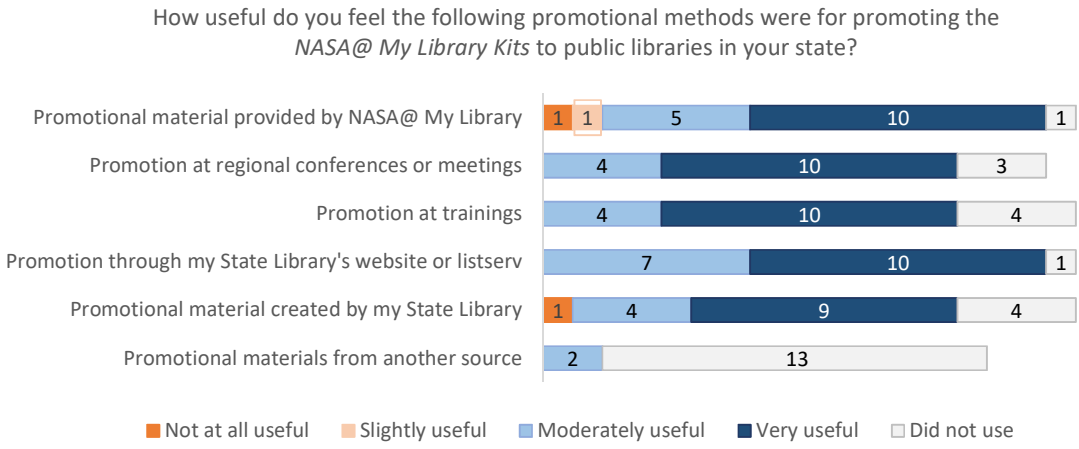
3. On the survey, SLAs reported a number of ways they provided training to their public libraries on the use of *NASA@ My Library* Kits (see figure below). How could the project team best work with State Libraries in the future to support them in providing training on Earth and space science-related activities to their public libraries?
    - **Prompt**: Are there specific resources or supports that the project team could provide to future SLAs to help with public library training in Earth and space science-related programming?



4. From your experience, what suggestions do you have for future SLAs about how to effectively engage and support their public libraries in utilizing *NASA@ My Library* resources?

Promotion (Asked during 2-3 FGs)

5. On the survey, most promotional resources were identified as being at least moderately useful for promoting *NASA@ My Library* Kits to public libraries (see figure below). What promotional strategies do you think were MOST effective for promoting Kits to your libraries? Were any methods particularly effective at reaching one of your target audiences?
   - **Prompt**: In what ways was having a *NASA@ My Library* webpage for your State Library was beneficial? Is there anything about the website you would change or do differently in the future?

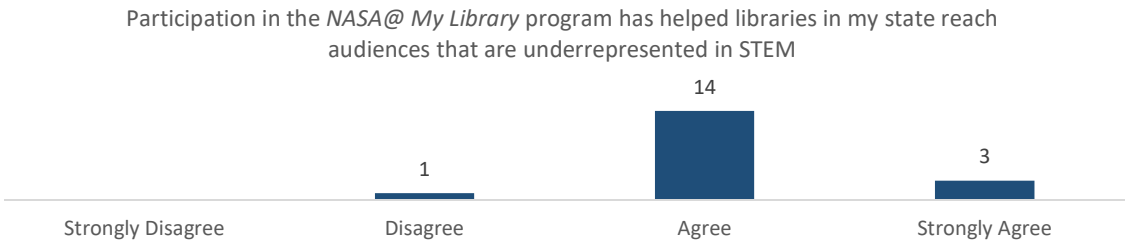


6. Do you have any other suggestions for how the project team could have helped more to support your efforts to promote the *NASA@ My Library* Kits to your public libraries?
   - **Prompt**: Do you have any feedback on the content or format of the videos (e.g., how-to videos) provided by SSI? Are there changes you can suggest that would make the videos more useful for promotion?

Underserved Audiences (Asked during 2-3 FGs)

7. You developed an "Underserved Strategy" that described the underserved groups you were interested in targeting and how you planned to do so. How did this strategy prove to be useful?
   - **Prompt:** Did it lead to any new insights about reaching underserved audiences?
   - **Prompt:** Is there anything you would have wanted from the *NASA@ My Library* team to help you develop the plan?

8. On the survey, most SLAs agreed that participation in *NASA@ My Library* has helped libraries in their state reach audiences that are underrepresented in STEM (see figure below). Do you have any stories to share from public libraries regarding successes or challenges in reaching underserved audiences?

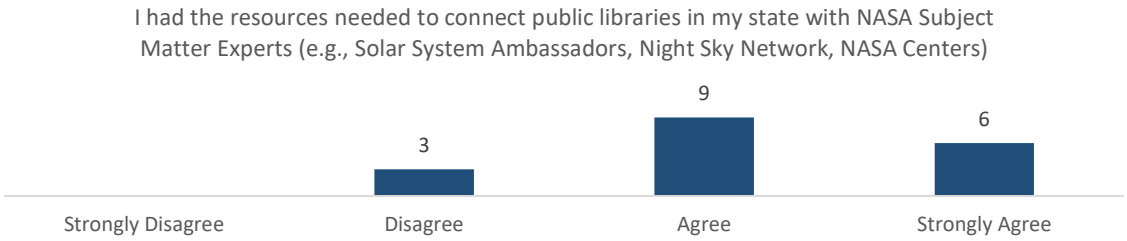


9. In what ways could the project team help SLAs to better support their public libraries in intentionally engaging underserved audiences?

Engaging SMEs (Asked during 2-3 FGs)

10. Please describe how you worked with Subject Matter Expert (SME) organizations as part of *NASA@ My Library*. What were the barriers or challenges that you encountered? For example, did you reach out to someone but not hear back?
    - **Prompt**: Did you specifically reach out to the Night Sky Network or Solar System Ambassadors? If yes, what was your experience? If no, why not?

11. On the survey, most SLAs agreed that they had the resources needed to connect public libraries with NASA SMEs (see figure below). What strategies were most effective at supporting public libraries in connecting with SMEs? What were the challenges or barriers?

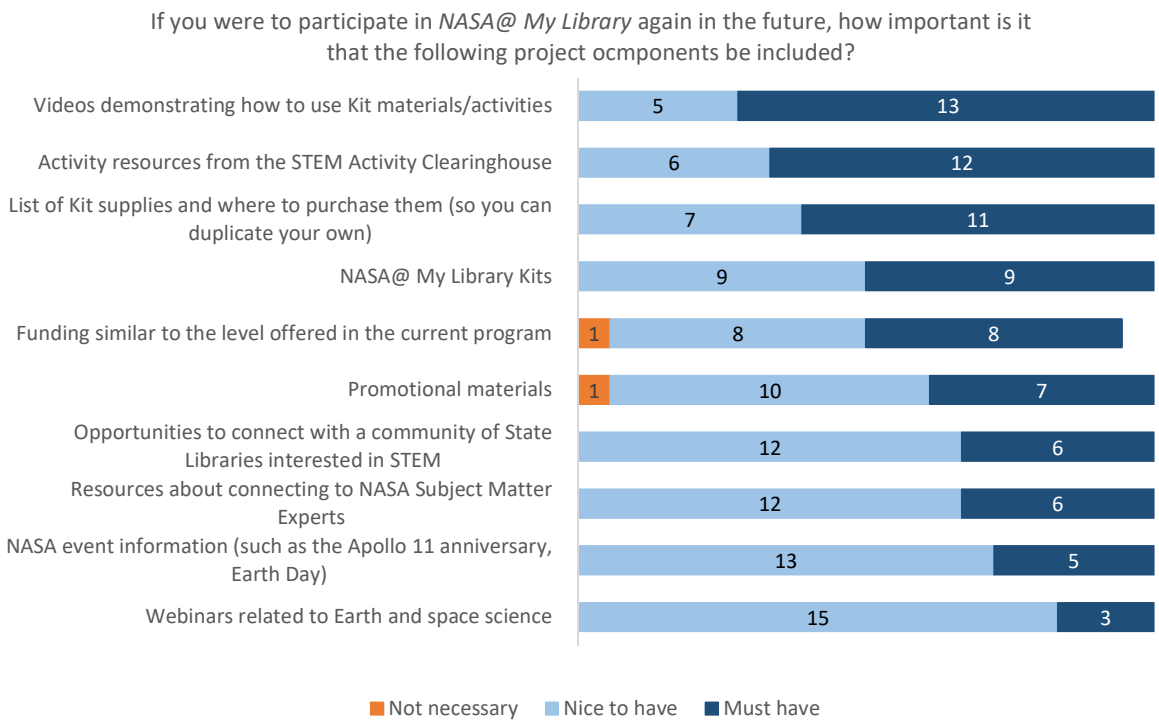


12. In what ways can the project team best work with State Libraries in the future to support SME engagement in public library programming?

Looking to the Future (Asked during all FGs)

13. On the survey, half of SLAs indicated that the stipend was "nice to have" and the other half felt it was a "must have" (see figure below). What, if anything, did the stipend allow you to do that you would not have otherwise been able to do?

14. On the survey, 16/18 ranked the physical kits as being the #1 thing that impacted their decision to join NaML, but looking ahead – only 9/18 felt kits were a "must have" (the others felt they were "nice to have" – see figure below). How-to videos, online activity resources, and a list of kit supplies were more likely to be listed as a "Must have"). What do you think could explain this difference?
    - **Prompt:** Thinking about a model moving forward, what suggestions do you have for providing physical Kits to SLAs? Are there any changes you would make to the current model (providing one or to Kits with the option for the SLA to duplicate on their own)?



15. Do you have any suggestions for recruiting the next group of SLAs? Is there anything the project team should be considering (e.g., anything about an SLAs commitment to or prior experience with STEM, anything else about the organization that may impact their ability to participate in the project)?

16. Are there any final suggestions or comments that you would like mention to inform how the team works with SLAs in the future?

Thank you so much taking the time to talk with me!

Sample Kit Survey (for public libraries)

Library & Program Information

Program Date:	
Name of Library (branch name, city, state):	
Community Type (check one):	☐ City ☐ City/Suburb ☐ Suburb ☐ Suburb/Rural ☐ Rural ☐ Other (e.g., tribal reservation, please describe):
How did you learn about this kit? (check all that apply):	☐ State Library Website ☐ Regional Conferences or Meetings ☐ Promotional Materials (e.g., flyers, emails) from my State Library ☐ Word of Mouth ☐ Other (please describe):
Contact Name/Title:	
Contact Email:	

People Served

Total # of people in attendance:	
Age group(s) in attendance (check all that apply):	☐ Infant ☐ Pre-K ☐ Early Elementary ☐ Upper Elementary ☐ Tweens ☐ Teens ☐ Adults ☐ Seniors
Did families attend (check one):	☐ Yes ☐ No
Which underserved audiences did you specifically reach out to for this program? (check all that apply):	☐ African-Americans ☐ Alaska Natives ☐ American Indians ☐ Hispanics and Latinos ☐ Native Hawaiians and Pacific Islanders ☐ People with Disabilities ☐ Economically Dsisadvantaged ☐ Women and Girls ☐ Rural Audiences ☐ None ☐ Other (please describe): Please share how you specifically reached out to these underserved groups:
Please share any other special promotional efforts used for this program:	

Evaluation Survey

Program Description

Who led or co-led the program (check all that apply):	☐ Library Staff ☐ Library Volunteers ☐ Local Science Experts (e.g., individuals from local astronomy clubs, planetariums, unversities) ☐ Other (please describe):
If you brought in a local science expert:	Please describe who they were and what they did at the program: Did your State Library help connect you with the local science expert? ☐ Yes ☐ No
Which items from the kit did you use? (check all that apply):	☐ Modeling Meaningful Eclipses ☐ UV Kid ☐ Sorting Games: How Big? How Far? How Hot? ☐ Jump to Jupiter ☐ Books from the *NASA@ My Library* Kit ☐ Sunoculars for Solar Viewing
Which of these additional resources did you use? (check all that apply):	☐ *STAR Net STEM Activity Clearinghouse* (clearinghouse.starnetlibraries.org) ☐ Other professionally created materials/programs (please describe): ☐ Other Source (e.g., other resources provided by your State Library; please describe): ☐ None
If you visited the online *STAR Net STEM Activity Clearinghouse*:	What was helpful? What could be improved? Do you plan to use the Clearinghouse for additional STEM programs ☐ Yes ☐ No
Do you have any stories or quotes from patrons that you'd like to share?	

Evaluation Survey

Public Library Experiences with Kit Resources

How satisfied or not satified were you with the following:	Not Satisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
The kit reservation process	☐	☐	☐	☐	☐	☐
State Library support in the use of the kit	☐	☐	☐	☐	☐	☐
State Library assistance in accessing other resources such as Earth and space science experts	☐	☐	☐	☐	☐	☐

How much do you agree or disagree with the following:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The kit was easy to use	☐	☐	☐	☐	☐
I would be interested in receiving more kits like this one	☐	☐	☐	☐	☐
Our library patrons appeared to enjoy the program	☐	☐	☐	☐	☐

Is there anything else you would like us to know about your program or your experience using the kit?