Primer for the Informal Science Education (ISE) Project Monitoring System

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I. Introduction

The National Science Foundation's (NSF) Informal Science Education (ISE) Program supports projects that seek to increase public interest in, understanding of, and engagement with science, technology, engineering, and mathematics (STEM). The ISE Project Monitoring System is an online collection that obtains annual information from each ISE-supported project. It is designed to obtain annual information from ISE Principal Investigators and/or Project Directors about their deliverables—as well as how their deliverables benefited public and professional audiences. This information will be used to document the collective impact of the ISE portfolio of funded projects, to monitor participants' activities and accomplishments, and to obtain information that can inform the design and implementation of future ISE projects. This document provides an overview of the system, describes the navigation of the online surveys, and provides information about how to respond to individual items.

Purpose and Structure of the ISE Project Monitoring System

The ISE Project Monitoring System is composed of a series of data collection forms, which are to be completed at different points in a project's lifecycle. The information collected by these forms varies slightly based on the point in the project's lifecycle at which it is being completed:

- **Baseline Survey—**obtains baseline information about a project's characteristics, deliverables, and anticipated impacts.

- **Annual Update—**obtains annual updates about projects' progress in implementing their approach.

- **Final Update—**obtains information about the extent to which projects completed their deliverables and attained their anticipated impacts. This is completed at the end of the project grant period (after the project's summative evaluation activities have been completed).

All of this information is collected online through a web-based system consisting of automatic skip patterns and internal validations. This system has been developed specifically for the ISE Program and reflects the information that ISE program officers need to manage their portfolio and respond to queries from Congress and other stakeholders. Most questions are designed to be answered using prelisted response categories that allow the user to choose the most appropriate response. However, there are several questions that require a brief narrative response. It is important to note that each question in each section is to be answered completely. This data collection form, and the specific ways in which it differs according to the various points in a project's lifecycle, is described in more detail below.

Purpose and Content of This Primer

This primer provides information about how to respond to individual collection items and navigate the online system. It is primarily designed for the principal investigators (PIs) and project directors who will be responsible for compiling information and overseeing the collection effort. This document provides information on the following topics (1) purpose and layout of the online data system; (2) purpose and content of the individual data collection modules; (3) technical features and resources; and (4) glossary of terms.

While most questions in this system are self-explanatory, there are some items that contain terms which need to be defined or require additional context or explanation. Additional information and guidance for these particular questions in the Baseline Survey and Annual and Final Updates are provided in Sections Two, Three, and Four, respectively. (For all other questions, you should find that the guidance and instructions provided on the screens will suffice.) Section Five presents information on various technical features that are part of the Project Monitoring System. Section Six provides a glossary of terms.

II. Baseline Survey

This section provides background information about the Baseline Survey, which is designed to obtain contact information about the lead organization and project partners, information about project characteristics, a description of all project deliverables, and an inventory of anticipated public audience and professional impacts. Instructions for completing specific items are provided below.

Information About the Lead Organization

This section is designed to collect data on the lead organization of the ISE grant. The lead organization is defined as the lead fiscal agent.

Q3—Organization Description: You should select the option listed in the drop-down menu that best describes your organization. While you may choose only one option, the options provided are not necessarily mutually exclusive. For example, the lead organization may be a planetarium that is part of a university, yet both are listed as options in the drop-down menu. In such cases, you should select planetarium, since it is the option that describes your organization in the most specific terms. If you select "other," you must provide a description in the text box provided.

Q4—Congressional District: You should enter the state and Congressional district number (e.g., Virginia 1) in which your lead institution is located. If you do not know the congressional district, you may go to http://www.house.gov and enter the lead organization's zip code under "Find Your Representative" to find your Congressional District.

NOTE: This item may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Q5—Prior Financial Support: You should indicate whether or not your organization was the recipient of previous financial support from the ISE program in particular—or any other program or division within the NSF. If your organization is a division or department of a larger entity (e.g., a museum within a university), you should indicate whether your division or department received prior financial support (as opposed to the larger entity). A separate drop-down menu is listed for each category of financial support.

NOTE: This item may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Q6—Contact Information: You should provide complete contact information for your organization. While you are not required to complete all of the text fields listed, you are required to provide the first and last name of the primary contact person for the lead organization. If you do not complete either of these text fields, an error message will appear indicating which field(s) is not complete, and you will not be able to proceed to the next questions unless that information is provided. While not required, it is recommended that an email address for that person be provided as well. If you do not provide an email address, a pop-up window will appear reminding you to enter an email address. If the contact person for the lead organization does not have an email address, you may click OK to proceed without submitting one.

Information About Individual Members of the Project Team

This section collects information about individual members of the project team, including their affiliation, their role on the project, their anticipated level of effort (which is defined as the number of days spent per year on project-related activities), and contact information. Projects will likely have more than one team member, and the system accommodates this by allowing for information on an unlimited number of individuals to be entered. Therefore, information on each of your project's individual team members should be submitted.

For the purposes of this collection, members of the project team includes individual Co-PIs, named advisors, key team members, and consultant that will be making substantial contributions to your ISE project and that has an ongoing relationship in the development of project deliverables.

NOTE: The information in this section may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Information About Organizational Partners and Contractors

This section collects the same information that is captured in *Information about the Lead Organization* for each organizational partner and contractor. Therefore, if you have questions regarding this section, you may refer back to the prior section. All five questions in this section should be completed separately for *each* organizational partner and contractor. For the purposes of this collection, an organizational partner or contractor is defined as one that participates in some aspect of the project, provides assistance to the project, or has another type of secondary role, but is not the lead fiscal agent (i.e., did not receive the grant). Examples include collaborative submitters, sub-awardees, contractors that play a key role (e.g., evaluation Firm, exhibit design firm), disseminations sites (please list only the top 10 if more than 10), and co-funders (who provide at least 10% of the total project budget).

Projects may have more than one organizational partner or contractor, and the system accommodates this by allowing for information on an unlimited number of partners and contractors to be entered. Therefore, information on each of your project's organizational partners and contractors should be submitted.

NOTE: The information in this section may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Information About the ISE Project

This section collects information on the focus and other characteristics of the project, as well as information about the project's intended audience.

Q2—Abstract: You should use the text field to provide an abstract of your project. This abstract should (1) specify the primary goals of your project, (2) identify the project's target audience, (3) provide a brief overview of your project's design, and (4) discuss any anticipated outcomes on the general public or professional audiences. The text field will accommodate up to 500 words, so you should be concise. It is also important to note that you will be provided subsequent opportunities to report information concerning the project's target audience (in Question 6 of this same section) and expected impacts (in Question 1 in the "Information about Project Impacts" section).

Q3—Project Focus: You should use the list that is provided to select the primary and secondary foci of your project. The project focus is defined as the specific subject area in which your project is seeking to increase knowledge among the public. Generally speaking, if a project has more than one focus, the amount of time and/or resources devoted to each focus should help determine which are primary. You may select up to two primary foci but may select an unlimited number of secondary foci. In addition, text fields are provided at the bottom of the list, which allows you to specify additional primary and secondary foci that are not included in the list.

Q4—Target Audience: Using the list provided, select your project's target audience. A target audience is defined as the specific segment of the population that is intended to receive exposure to or otherwise benefit from your project. Select one of the following three options: (1) public audiences; (2) professionals or institutions; or (3) <u>both</u> public audiences and professionals or institutions.

For the purposes of this collection, public audiences are defined as learners who are engaged in self-directed learning in informal settings—while professionals are defined as those individuals (e.g., museum staff, filmmakers) who are affiliated with organizations that address issues central to improving understanding of the principles and implementation of the practice of informal science education.

If your project is designed to serve <u>both</u> public and professional audiences, you will need to indicate the approximate proportion of project effort that is devoted to these two components of your ISE initiative.

Q5a and Q5b—Anticipated Number to be Reached by the Public Audience Component of Your Project): If your project targets public audiences in their home or in a private setting via radio, television, and/or the Internet, you will be asked to complete Q5a. If your project targets public audiences in a public setting (e.g., museum, theater, library, community center, zoo) you will be asked to complete Q5b.

- **Q5a—Number of Anticipated Users, Listeners, and/or Viewers:** Provide your best estimate of the number of individuals who will encounter (e.g., view or listen to) this deliverable (1) during the ISE grant award period, and (2) up to 5 years after the ISE grant award period.

- **Q5b—Number of Anticipated Individuals Who Will Be Directly Reached by Your ISE Project at the Venue:** Provide your best estimate of the number of individuals who will be reached by your ISE project at the venue (e.g., a museum exhibit) (1) during the ISE grant award period, and (2) up to 5 years after the ISE grant award period.

  NOTE: For <u>*both*</u> 5a and 5b, your estimate for up to 5 years after the ISE grant award period should include the number that you include for the ISE grant award period. For example, if you expect to have 10,000 individuals visit your museum exhibit during the grant award period, and another 40,000 individuals visit the exhibit in the five years following the grant award period, you should indicate that a total of 50,000 individuals will visit the exhibit in the 5 years following the ISE grant award period.

Information About Deliverables

In this section, you are asked to provide detailed information regarding each of your project's deliverables. A deliverable is defined as a material produced by the project that is designed to lead to the project's intended impacts. (See the Glossary of Terms and Phrases in Section VI for a more detailed definition of deliverables.) Projects may have more than one deliverable, and the system accommodates this by allowing for an unlimited number of deliverables to be entered. Therefore, you should list each distinct deliverable that your project is developing. You will then be asked to provide information about each of these deliverables.

Q5—Project Status at the End of Each Project Year: Provide a brief description of the progress that will be on this deliverable for each year (until the deliverable is fully implemented).

Information About Project Impacts

This section collects information about each impact your project is designed to achieve. For the purposes of this collection, an impact is defined as an ultimate result that a project is designed to achieve. Impacts should be broadly stated, cover substantial ground, and reflect a long-term timeframe (e.g., the ISE project will increase the knowledge of astronomy among children in Portland, Maine). Exhibit 1 provides some hypothetical examples of impacts. Whether or not an impact has been achieved will be determined by the use of indicators, which should be expressed as specific sub-impacts (e.g., "Students who visit the museum's astronomy exhibit will demonstrate increased knowledge about climates on other planets"). If possible, your indicators should specify *measurable* targets against which progress can be measured (e.g., "80 percent of students who visit the museum's astronomy exhibit will demonstrate increased knowledge about climates on other planets").

When completing this section, you will need to distinguish between the following types of impacts: *public* audience impacts, *professional* audience impacts, and *strategic* impacts (definitions for each are provided on the screen and in the glossary of this primer). It may be useful for you to develop a list of your project's impacts and categorize them prior to entering the information into the system.

For the purposes of this collection, *impacts* and *indicators* are defined as what occurs as a result of participation by informal learners (public audiences) or by ISE professionals (professional audiences) in a specific activity. Each impact (and each corresponding indicator) should be articulated in a single sentence. Projects may have multiple impacts—and the system accommodates this by allowing for an unlimited number of impacts to be entered. Each impact can have up to five indicators.

The information in this section may have been pre-filled using the information on impacts provided in your project's proposal for funding. However, you should verify the information entered and make additions and modifications as needed.

NOTE: You will eventually be asked to address progress toward attaining each indicator (e.g., indicate the extent to which the individual indicators pertaining to each impact were achieved) in the annual update and closeout forms. Therefore, you should state each impact and corresponding indicator in a manner that will make it possible for you to indicate clearly the degree to which they have been achieved.

Exhibit 1.—Examples of ISE impact categories for hypothetical museum exhibit on the history of efforts to learn about the Earth's moon

Impact category	Definition	Examples
Awareness, knowledge or understanding	Measurable change in a target population's familiarity, comprehension, expertise, or appreciation of a scientific topic, concept, phenomena, or theory	Visitors will increase their awareness of the people who shaped our evolving perception of the Earth's moon (e.g., Ptolemy, Copernicus, Galileo, Cassini, Apollo astronauts)
		Visitors will increase their awareness of research tools that have been used to study the Earth's moon (e.g., telescope, sextant, Luna spacecraft, Pioneer 4, Surveyor, Lunar Prospector, Gamma Ray Spectrometer, passive seismograph)
		Visitors will increase their awareness of scientific discoveries that resulted from efforts to study the Earth's moon
		Visitors will increase their knowledge about the origin, formation, and geography of the Earth's moon
		Visitors will increase their knowledge of the theory behind how the moon (in conjunction with the Sun) influences the Earth's tides
Engagement or interest	Measurable change in a target population's interest, inquisitiveness, or curiosity about a scientific topic, concept, phenomena or theory	Visitors will spend at least 45 minutes in the exhibit on the Earth's moon
		During their visit to the museum, students will engage their parents in conversations about specific phenomena that are featured in the exhibit
		Visitors will indicate that the exhibit increased their interest in learning more about the Earth's moon and/or a related topic
Attitude	Measurable change in a target population's opinion, perspective, or point of view toward a previously held scientific belief	Middle/high school visitors will consider a career in engineering, astronomy, or a related field
		Visitors will see the relevance of future manned and unmanned expeditions to the Earth's moon
Behavior	Measurable change (that results from an informal learning experience) in a specific action or the performance of a specific activity	Visitors will seek out additional information about the Earth's moon on the Internet
		Visitors will purchase a book related to the Earth's moon
		Visitors will share information about the exhibit and/or the Earth's moon with family, friends, or colleagues
		Visitors will join an astronomy club or attend a star party
		Visitors will purchase a telescope
		Visitors will take a course in astronomy

Exhibit 1.—Examples of ISE impact categories for hypothetical museum exhibit on the history of efforts to learn about the Earth's moon (continued)

Impact category	Definition	Examples
Skills	Measurable demonstration of the development and/or reinforcement of a specific ability, capability, or aptitude—for example: (1) engaging in inquiry skills (observing, classifying, exploring, questioning, predicting, experimenting); or (2) using scientific instruments (microscopes or telescopes)	Visitors will learn how to use a telescope to locate specific geographic formations on the Earth's moon
		Visitors will learn how to photograph the Earth's moon (with or without a telescope)
		Visitors will learn how to use the phases of the Earth's moon to predict the magnitude of low and high tides

Click on the "Add an Impact" button listed under the appropriate heading (i.e., public audience, professional audience, or strategic) to begin entering information on additional impacts.

Q1—Specify a public audience impact on the ISE field that your project is designed to achieve: Public audience impacts refer to benefits expected to emerge as a result of an informal learner's participation in your project. Examples of impacts include gains in knowledge, increased engagement or interest in a specific topic, changes in attitude or behavior, and acquisition of new skills.

NOTE: The information for this item may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Q1—Specify a professional audience impact on the ISE field that your project is designed to achieve: Professional audience impacts refer to benefits expected to emerge as a result of participation by ISE professionals in your project. Examples of professional audience impacts include acquisition of new knowledge or skills, and the development or implementation of specific practices that are designed to improve an institution's ability to engage informal learners.

NOTE: The information for this item may have been pre-filled using information taken from your project's proposal for funding. However, you should verify the information entered and make modifications as needed.

Q1—Specify a strategic impact on the ISE field that your project is designed to achieve: Strategic impacts refer to a longer-term outcome affecting the field of informal STEM education in addition to the public or professional impacts on target audiences. Strategic impacts may be achieved through new approaches, strategies, models, findings, or other means designed to advance the systems or institutions that promote informal learning. These outcomes may not be measurable within your project's time frame.

NOTE: Q2 through Q5 below are to be completed for each public audience and professional audience impact, but not for strategic impacts. For strategic impacts, you will only be asked to indicate the types of dissemination methods your project plans to use to share information about your project and its findings with the field.

Q2—Impact Category: You will be asked to indicate the appropriate category for your stated impact, using a list of five categories. Exhibit 1 shows the definitions of these five impact categories and provides some hypothetical examples of impacts for each category. If you find that your outcome does not fit into any of these categories, you may select "other." In addition, you may check more than one category. However, if you select more than one category, you may want to consider breaking up the impact statement into two or more separate impact statements, with each pertaining to a specific category.

Q3—Evaluation Designs and Data Collection Methods/Sources: Use the list provided in the survey to indicate all of the evaluation design and data collection methods/sources that will be used to determine whether the impact was achieved. (It will likely be necessary to consult your project's evaluator when completing this item.) The list of evaluation designs is divided (as indicated in bold) into two sets: (1) designs that include the use of comparison groups, and (2) designs that do not use a comparison group. The list of data collection methods is also divided (as indicated in bold) into two sets based on whether data was collected (1) *during* or immediately following the ISE intervention or, (2) at some point *after* the ISE intervention. Since several of the response options under these two sets are similar, please be sure that you select the appropriate item. It is also important that you specify the design and data collection method that pertain to a particular impact; *you should not check all designs or data collection methods you will be using for your project as a whole.* Definitions for the study designs and data collection methods are included in the glossary.

Q4—Year In Which Impact Will Be Achieved: For this item, please select, using your best estimate, the calendar year in which the particular impact in question will be achieved.

Q5—Indicators: For each stated impact, you should provide at least one indicator that corresponds directly to the impact stated in Q1. These indicators should be specific, realistic, measurable and achievable through your project's deliverables and strategies. For example, if your impact is that "Visitors will increase their awareness of scientific discoveries that resulted from previous and current efforts to study the Earth's moon," an appropriate indicator might be that 75 percent of visitors who participate in a survey after viewing the exhibit will be able to list at least one scientific discovery that resulted from the Apollo missions to the moon. You may list up to five indicators for each impact.

III. Annual Update

This section provides background information about the Annual Update, which is designed to update the information that you provided in the Baseline Survey, as well as to report on your progress in developing your deliverables and attaining your impacts. Instructions for completing specific items are provided below.

Information About the Lead Organization

This section is designed to allow you to review and update (if necessary) contact information for the lead organization provided in the Baseline Survey. This information includes the lead organization's name, the relevant division/department, and complete contact information (i.e., name, address, phone number, and email).

Q1—Update: All contact information entered for the lead organization in the Baseline Survey (and prior Annual Updates) will automatically appear. You should review this information carefully and correct any information that is inaccurate; if the lead organization's contact information has not changed in any way, there is no need to enter or change any information in this screen.

Information About Individual Members of the Project Team

This section is designed to update (if necessary) information for each individual member of the project team provided in the Baseline Survey, as well as to provide you an opportunity to report information on additional members not included in the Baseline Survey. This section is presented in the same format as in the Baseline Survey.

Information About Organizational Partners and Contractors

This section is designed to update (if necessary) contact information for each *organizational partner or contractor* provided in the Baseline Survey, as well as to provide you an opportunity to report additional partners or contractors not included in the Baseline Survey.

Q1—Progress in developing or strengthening partnerships: This question is designed to obtain information about steps taken in the past year to establish or strengthen partnerships between the lead organization and the various partner organizations. It can also be used to describe steps taken to establish or strengthen formal and informal relationships between partner organizations. You can use this item to describe (1) efforts to forge collaborative relationships between the organizations participating in your projects, (2) the benefits that these collaborative relationships have had on your project, (3) any ancillary benefits that these collaborative relationships have had outside of your project, (4) challenges that you have encountered in forging and maintaining these relationships, and (5) lessons learned regarding the effective use of partners that might be of use to other ISE projects.

Partners: The initial screen in this question will display a list of organizational partners and contractors submitted in the Baseline Survey. The left hand column of this list displays the organizational partner/contractor name. The right hand column indicates whether the report on each partner or contractor has been reviewed and/or updated.

You should review all of the information for each partner organization. If there are any new partners or contractors (ones that were not included in the Baseline Survey), you should click the “Add a Partner/Contractor” button at the bottom of the screen.

Information About Project Deliverables

This section collects information regarding progress on each of your project’s deliverables during the past year. You will be asked to specify what changes, if any, have been made to the scope or substance of your project, whether the project is on budget, as well as to describe any significant evaluation activities that have occurred during the past year. You will also be provided an opportunity to report additional deliverables that were not submitted in the Baseline Survey or in prior annual updates. These items are presented in the same format as in the Baseline Survey.

NOTE: Although you will also be asked in this section to explain why any projected deliverables that were specified have not been produced (if applicable), these items are not meant to be punitive. Therefore, you should think carefully about each question in this section and answer it as completely as possible, since a major purpose of the ISE Project Monitoring System is to collect information that could be shared with future projects regarding best practices, as well as to inform future projects of various potential challenges and how best to overcome those challenges.

Q1—Changes to project scope: Answer “Yes” if there were any substantive changes to your project in the previous year. Examples include the addition/deletion of a deliverable, a delay in the schedule for a project deliverable, changes to the project’s evaluation design or data collection methods, or a change in key staff. If you have not already discussed these changes with your program officer, you should do so before submitting this information.

Q2—Describe changes to project scope: This question applies only if you answered “Yes” to Q1 in this section. You should provide a brief description of why this change occurred and the impact it might have on the project impacts that you delineated in your proposal and/or the baseline survey. You should provide this information even if you have already documented these changes (verbally or in writing) with your program officer.

Q3: Variance in project budget: Answer “No” if your project is currently over budget by more than 10 percent.

Q4—Describe budget variances: This question applies only if you answered “No” to Q3 in this section. Your response should describe: (1) the budget variance; (2) how the budget variance might impact the scope and substance of your project; and (3) steps being taken by the project to address the budget variance. You should provide this information even if you have already documented these issues (verbally or in writing) with your program officer.

Q5—Significant evaluation activities: Provide information about the types of evaluation activities that have occurred during the past year—including planning meetings with project evaluators, developing data collection instruments, obtaining permission to collect data (e.g., from an IRB), collecting baseline or follow-up data, and analyzing and reporting data. You can also use this section to describe any challenges that you or your evaluator encountered in conducting these evaluation activities.

After you complete Questions 1 through 5 in this section, you will be asked to report on the status of your project’s deliverables by addressing the sequence of questions below for <u>each</u> specific deliverable.

Q1—Status of Project Deliverables: Please use one of the following options to indicate the status of each deliverable at project closeout: "Completed," "On or ahead of schedule," "Behind schedule," or "No longer part of the ISE project." Depending on how you answered the question above, you will then be asked to address one of the following items:

- **Q2—Factors that Contributed to Deliverables Being Behind Schedule:** This question applies only if you answered "Behind schedule" to Q1 in this section. The purpose is to provide both your program officer and future ISE projects with an understanding of the challenges or circumstances that you are encountering that are specific to the deliverable—as well as steps being taken to overcome these challenges or circumstances.

- **Q3—Factors that Contributed to Deliverables Being Dropped:** This question applies only if you answered "No longer part of the ISE project" to Q1 in this section. The purpose is to provide both your program officer and future ISE projects with an understanding of the challenges that you encountered that were specific to the deliverable.

In this section, you will also have the opportunity to report any additional deliverables that were not submitted in the Baseline Survey or in prior Annual Updates. These items are presented in the same format as in the Baseline Survey.

Information About Project Impacts

This section collects information regarding progress on each of the impacts indicated in the Baseline Survey or prior annual updates. You will also be asked about your project's most significant accomplishment during the past year. In Questions 2a through 2c, you will be asked for information pertaining to the number of participants within each of your project's audience types (i.e., public audiences or professional/institutional audiences). You will also be provided an opportunity to report additional impacts that were not submitted in the Baseline Survey or in prior Annual Updates. These items are presented in the same format as in the Baseline Survey.

Q1—Most Significant Accomplishment: This question provides you the opportunity to describe what you consider to be your project's most significant accomplishment. You should provide a clear explanation of why you consider what is included in your response to be more significant than any of your project's other accomplishments in the previous year. Note that this accomplishment can be associated with the development or completion of a deliverable—as well as with the public, professional, or strategic impacts associated with a given deliverable.

Q2a-Q2c—Number of individuals that were reached by the deliverables associated with your project: For each organization/setting/method, indicate the status (operational, not yet operational, no longer pertains to the project). If the deliverable is operational, you will also be asked the number of participants who were exposed to/participated in this ISE activity in the past year—as well as whether the number you provide is based on an actual count or an estimate.

After you complete Question 1 and Questions 2a through 2c (whichever are applicable), you will be asked to report on the status of each of your project's impacts. Specifically, for each impact, you will be asked to indicate that your project is (1) on track to achieve this impact *during* the period of the ISE grant; (2) on track to achieve this impact *after* the period of the ISE grant; or (3) no longer considered to be an impact for this ISE project. If you answered "No longer considered to be an impact for this ISE project," you will then be asked to describe why this impact no longer pertains to your project.

Information About ISE Program Improvement

This section, which consists of only one question, collects information on lessons learned as a result of the project that would be of use to ISE program officers and other projects. You should use this item to reflect on your experiences over the past year as you identify lessons learned (from your accomplishments and the challenges you encountered) that would be of value to future ISE initiatives.

IV. Final Update

This section provides background information about the Final Update, which is designed to update the information that you provided in the Baseline Survey and Annual Updates, report on your progress in attaining your impacts, and describe your plans for sustaining project activities beyond the life of your ISE grant. Instructions for completing specific items are provided below.

Information About the Lead Organization

This section is designed to allow you to review and update (if necessary) contact information for the lead organization. This section is presented in a format identical to that used for the same section in the Annual Update. All contact information entered for the lead organization in the Baseline Survey and Annual Updates will automatically appear. You should review this information carefully; if the lead organization's contact information has not changed in any way since the prior year's Annual Update, there is no need to enter or change any new information in this screen.

Information About Individual Members of the Project Team

This section is designed to update (if necessary) information for each individual member of the project team provided in the Baseline Survey and Annual Updates and is presented in the same format. Unlike in the Annual Update, however, you will not need to submit information on any new members of your project team.

Information About Organizational Partners and Contractors

This section is designed to update (if necessary) contact information for each organizational partner and contractor provided in the Baseline Survey and Annual Updates and is presented in the same format. Unlike in the Annual Update, however, you will not need to submit information on any new organizational partners or contractors.

Q1—Progress in developing or strengthening partnerships: This question is designed to obtain information about steps taken in the past year to establish or strengthen partnerships between the lead organization and the various partner organizations. It can also be used to describe steps taken to establish or strengthen formal and informal relationships between partner organizations. You can use this item to describe (1) efforts to forge collaborative relationships between the organizations participating in your projects, (2) the benefits that these collaborative relationships have had on your project, (3) any ancillary benefits that these collaborative relationships have had outside of your project, (4) challenges that you have encountered in forging and maintaining these relationships, and (5) lessons learned regarding the effective use of partners that might be of use to other ISE projects.

Information About Project Deliverables

This section collects information regarding progress on each of your project's deliverables during the past year. You will be asked to specify what changes, if any, have been made to the scope or substance of your project, whether the project is on budget, as well as to describe any significant evaluation activities that have occurred during the past year. These items are presented in the same format as in the Annual Update; however, unlike in the Annual Update, you will not need to submit information on any new deliverables that were not submitted in the Baseline Survey or in prior Annual Updates.

NOTE: Although you will also be asked in this section to explain why any projected deliverables that were specified have not been produced (if applicable), these items are not meant to be punitive. Therefore, you should think carefully about each question in this section and answer it as completely as possible, since a major purpose of the ISE Project Monitoring System is to collect information that could be shared with future projects regarding best practices, as well as to inform future projects of various potential challenges and how best to overcome those challenges.

Q1—Status of Project Deliverables: Please use one of the following options to indicate the status of each deliverable at project closeout: "Completed," "Not completed," or "No longer being proposed as part of the ISE project."

Q2—Factors that Contributed to Deliverables Not Being Completed By End of the Project: This question applies only if you answered "Not completed" to Q1 in this section, which asks for the status of the project deliverable. The purpose is to provide both your program officer and future ISE projects with an understanding of the challenges that you encountered that were specific to the deliverable.

Q3—Factors that Contributed to Deliverables Being Dropped: This question applies only if you answered "No longer being proposed as part of the ISE project" to Q1 in this section. The purpose is to provide both your program officer and future ISE projects with an understanding of the challenges that you encountered that were specific to the deliverable.

Information About Project Impacts

This section collects information regarding progress on each of the impacts delineated in the Baseline Survey or prior Annual Updates. You will be asked about the project's most significant accomplishment during the past year, as well as for information pertaining to the number of participants within each of your project's audience types (i.e., public audiences or professional/institutional audiences).

This is the only section in the final annual form in which you will be provided an opportunity to report additional information that was not submitted in the Baseline Survey or in prior Annual Updates. Specifically, you can report information on new impacts in the same format as in the Baseline Survey and prior Annual Updates.

NOTE: Although you will also be asked in this section to explain why any projected impacts that were specified have not been met (if applicable), these items are not meant to be punitive. Therefore, you should think carefully about each question in this section and answer it as completely as possible, since a major purpose of the ISE Project Monitoring System is to collect information that could be shared with future projects regarding best practices, as well as to inform future projects of various potential challenges and how best to overcome those challenges.

Q1—Most Significant Accomplishment: This question provides you the opportunity to describe what you consider to be your project's most significant accomplishment. Your response to this item may or may not contain information that is related to the impacts you specified for your project in the baseline or annual forms. You should provide a clear explanation of why you consider what is included in your response to be more significant than any of your project's other accomplishments.

Q2—Unanticipated Impacts: This question provides you the opportunity to describe any unforeseen benefits or impacts that you did not include in your baseline or annual forms.

Q3a-Q3c—Number of individuals that were reached by the deliverables associated with your project: For each organization/setting/method, indicate the status (operational, not yet operational, no longer pertains to the project. If the deliverable is operational, you will also be asked the number of participants who were exposed to/participated in this ISE activity in the past year—as well as whether the number you provide is based on an actual count or an estimate.

Q4—Approaches Taken to Disseminate Information: This question provides you the opportunity to describe any approaches taken to disseminate information about your project to others in the ISE field. Please be sure to include any approaches that were taken during the grant period, including during the initial stages. However, you should limit your response to approaches that were aimed at the ISE field, since subsequent questions will address any honors or awards received by your project, and any print and media coverage generated about your project.

Extent to which indicator has been achieved: In the Baseline Survey, you were asked to delineate public audience, professional audience, and/or strategic impacts for your project. For each impact, you were then asked to identify up to five indicators that could be used to assess whether the broader impact was met. After you complete Questions 1 through 7 in this section, you will be asked to report on the status of your project's impacts by addressing the sequence of questions below for the indicators associated with each individual impact. Please indicate the extent to which each of the indicators you have entered into the baseline or annual form was achieved as planned. For example, indicate:

- "*More than planned*" if you exceeded your original expectations for a specific indicator;
- "*As planned*" if you met a specific indicator;
- "*Less than planned*" if you made progress toward a specific indicator—but that progress was less than initially anticipated;
- "*Not achieved*" if you failed to make progress toward a specific indicator; and
- "*No longer applicable*" if the indicator has been dropped by your project.

If a given indicator does not contain a numeric benchmark, use your best judgment when determining which of the above categories pertains to the status of a given indicator—keeping in mind that you will need to use the brief narrative that follows to justify any statements that an indicator was achieved "more than planned."

Depending on the status, you will then be asked to provide the following information for each individual indicator:

- **Evidence that indicator has been achieved:** This question applies only if you answered "More than planned," "As planned," or "Less than planned" at the beginning of this section. Use your response to provide tangible and specific evidence (e.g., from your project evaluation) that this indicator has been achieved. To the extent possible, your narrative should include data from the study design and data collection methods delineated in the baseline and annual forms for the impact associated with this indicator. If applicable, provide justification that an indicator was achieved "More than planned."

- **Describe (1) any factors that hindered your project's ability to achieve this indicator, (2) steps you are planning to take to achieve the indicator in the future, and (3) method(s) your project is planning to use to document that the indicator has been attained:** This question applies only if you answered "Not achieved" at the beginning of this section. Use your response to this item to provide your program officer with an honest assessment of factors that hindered your project from achieving this indicator (or measuring whether this indicator was attained)—as well as steps you plan to take to achieve the indicator in the future and the methods that will be used to assess whether the impact has been attained. The purpose is to provide similar ISE projects with useful information that will enhance their capacity to attain similar indicators (and/or measure progress toward similar indicators).

- **Discuss why this impact no longer pertains to your project (e.g., change in project scope):** This question applies only if you answered "No longer applicable" at the beginning of this section. The purpose is to provide both your program officer and future ISE projects with an understanding of the challenges that you encountered that were specific to the indicator.

Information About Program Improvement and Future Directions

In this section, you will be asked about the impact of the ISE funds on your project's ability to offer services and activities, as well as to describe any lessons learned and to list any innovative contributions by your project to the field of informal science. You will also be asked whether your project will continue beyond the ISE grant award period, and, if so, to provide a description of your project's future plans.

V. Technical Features and Resources

This section describes some of the technical and navigational features built into the ISE Project Monitoring System, as well as how to perform other basis functions, such as printing. It also provides additional resources for finding help.

Logging In and Passwords

To use the ISE Project Monitoring System, you must have access to the Internet through a Web browser, such as Microsoft Internet Explorer or Mozilla Firefox. To access the system, you should type the following in the address bar of your browser:

www.iseprog.org

Your login information will sent to you via email on the date the system opens. Your user ID will be the 7-digit project number issued for your project by NSF. In this email, you will also be provided a randomly generated, 4-digit alphanumeric password.

General Navigation

After logging in to the ISE Project Monitoring System, you should begin completing the system by clicking on a section name, all of which are listed in blue, in the initial screen. The system allows you to complete the sections in the Baseline Survey and Annual and Final Updates either in sequential order or in whichever order you prefer. After a section has been completed, a checkmark will appear next to that section name listed at the top of every screen. In addition, each screen shows the report status, listed in red immediately below the section names. Unless you have completed all questions in all sections of the survey, the status will be listed as "Not complete."

For each individual question in the system, you are asked to provide information either through the use of text fields, drop-down menus, or by checking boxes, or a combination of these. After entering and/or selecting the appropriate information for a question, you should click on "Save & Continue" at the bottom of the screen. This will automatically save the information entered for the current question and will automatically go to the next question.

On each screen in the Baseline Survey and Annual and Final Updates, a question guide appears on the left side of the screen. This provides a list of all questions in that particular section. A red bar with a checkmark to the left indicates that the particular question has been completed. A blue bar with an arrow indicates that you have entered the screen for that particular question but have not yet completed it. A black bar in the Question Guide indicates either 1) that that question cannot be accessed because prior questions in that section have not been completed or 2) that the question may be part of a skip pattern and thus is not applicable based on your responses to a prior question.

You should answer questions within a particular section in sequential order; however, you may skip to any question you have already answered within a particular section by clicking on the appropriate bar in the question guide. You may also access sections you have already completed by clicking on that section's link in the menu at the top of each screen.

At any time while completing the system, you may return to a previous screen or question by clicking on the “Back” button on your Web browser.

In addition to the section links, there are several additional links at the top of every screen in the system. The following links will allow you to navigate through the system:

- **Home:** This links back to a main menu, which appeared when you first entered the system. If you click this link while answering a question, you will be taken out of that question. To return to that question, click the Back button on your browser.

- **Print:** This links to a screen that presents a variety of options for printing. Printing functions are described in detail under “Printing” below.

- **Glossary:** An alphabetized listing of key terms and their definitions is provided here.

- **Help:** If you have questions about the system, try this link.

- **Downloads:** You may use this link to download paper versions of screens contained in the system. Examining the system on paper prior to completing it will likely make it easier for you to gather all documents or other information you will need to answer the questions contained within.

- **Sign Out:** This will automatically log you out of the system and link you back to the login page.

Final Submittal

Once you have successfully completed all questions in all sections, the data must be submitted to the system. A final submission of data is your last step in completing a survey. After the final submission of a survey, access to the system will be denied. For example, if you successfully complete the Baseline Survey and click the final submittal button, you will be automatically logged out of the system. If you attempt to log in again, you will be taken to the Annual Update. In the event that you need to reopen the system after a final submission, you must contact John Wells at Westat at 1-800-937-8281, ext. 2663, and make a request.

Text Entry

Many screens in the ISE Project Monitoring System have text boxes, as indicated above, in which you should supply information in narrative form. None of the text boxes asks you to submit an exorbitant amount of information. However, you should be prepared to provide complete answers to open-ended questions. Therefore, since there are no text formatting or editing tools (e.g., spell check) built into the system, it may be easier for you to type your answer in a word processing program, format and edit it, and then copy and paste it into the appropriate text box. Most word processing software should work for these purposes.

Printing

If you would like to print the information entered into the system, you should click on the "Print" link, listed in blue, at the top of any screen. This will provide you with a variety of options for printing. You will find a list of all sections in the survey you are currently in the process of completing (i.e., Baseline Survey, Annual Update, or Final Update). The status (i.e., whether or not the section has been completed) is listed to the immediate left of each section name. A checkmark indicates that that section has been completed, and an "x" indicates it is incomplete. You cannot view or print a section until you have completed it.

For sections that have been completed, a "print report" and a "view report" icon both appear to the immediate right of the section name. Clicking on the "print report" will begin printing a list of all questions and their respective responses for that section. Clicking on the "view report" will provide you with a preview of what the printed document will look like.

Otherwise, for each completed or uncompleted section, you may return to that section by clicking on the link containing the section name in the column labeled, for example, "View Baseline Survey."

Logging Out/Saving Information

If you unable to complete an entire section or survey at one time, you may complete part of the section or survey by clicking on "Save" at the bottom of any question and then log out by clicking on the "Sign Out" link, listed in white, at the top of any screen. This will return you to the main log in screen, which asks for the user name and password. All information entered up to that point will be saved.

As stated above, you may only partially complete the system, log out, and enter the system later to complete any remaining information. When you reenter the system, you will be taken to the introductory screen, which lists the section names for that survey. When clicking on a section, you will be taken directly to the first question not answered in that section. For example, if you complete only Items 1 and 2 of the "Information about the Lead Organization" section, you will be automatically taken to Item 3 of that section.

Help

If you have any questions about navigating the ISE Project Monitoring System or how to respond to an individual item, please contact the Westat staff member who has been assigned to your project at isehelp@westat.com.

VI. Glossary of Terms and Phrases

Anticipated level of effort: The number of hours spent per year on project-related activities by a project team member.

Case study: An intensive, detailed description and analysis of a single project, program, or instructional material in the context of its environment.

Causal-comparative: Also referred to as ex post facto, explanatory survey, association, or correlational studies, this type of evaluation design involves instances in educational settings in which the independent variable cannot be modified and people cannot be assigned to a group.

Deliverable: Material produced by the project that is designed to lead to the project's intended impacts. A project may have numerous deliverables. Examples of deliverables for public audiences include an exhibition (permanent or traveling); film or video; educational program, kit, or materials; radio program or series; software; television program or series; web sites. Examples of deliverables for professional audiences include collaborative, consortium, or network; conference, seminar, or workshop; media programs; professional development; publication or report; web site.

Dose response: A type of study design that examines the relationship between the amount of exposure (dose) to a program, policy, or instructional material and the resulting changes in a desired outcome (response).

Ethnographic study: Also referred to as descriptive anthropology. Ethnographic program evaluation methods often focus on a program's culture.

Experimental design: A study that measures the intervention's effect by (1) randomly assigning individuals (or other units, such as classrooms or schools) to a group that participated in the intervention, or to a control group that did not; and then (2) comparing post-intervention outcomes for the two groups.

Formative evaluation: This type of evaluation begins during program development and continues throughout the life of the program. Its intent is to provide information to monitor and improve the program by assessing whether the program is being conducted as planned as well as to assess progress in meeting the program's goals. Formative evaluation is done at several points in the developmental life of a program and its activities, such as through audience testing of exhibit prototypes, alpha and beta versions of software, or pilot programs.

Impact: The ultimate result of improvement that a project is designed to achieve. An example would be to "enhance children's interest in and knowledge of a specific content area."

Indicator: For the purpose of this collection, an indicator is defined as a series of statements that break down the sub-components of a public or professional audience impact.

Individual member of project team: Any individual (e.g., advisor or consultant) who will commit at least one day per year to the project or at least five days over the life of the project.

Lead organization: The lead fiscal agent for an ISE-funded project.

Organizational partner/contractor: An organizational partner or contractor is defined as one that participates in some aspect of the project, submits a grant proposal in collaboration with the lead organization, provides assistance to the project, or has another type of secondary role, but is not the lead fiscal agent (did not receive the grant). There may be numerous partner organizations in a single project. An organizational contractor is paid to carry out a portion of the project, often as a sub award.

Pre-/post-test: This type of study design refers to a process by which a preliminary survey or test is administered *before* respondents are exposed to an intervention to determine their baseline status regarding a desired outcome (such as knowledge, attitude, or behavior). The use of a post-test (comprised of the same items as the pre-test) is then used to measure respondents' post-intervention status for the desired outcome.

Post-test only: This type of study design refers to a process by which a survey or test is administered to the subjects of a research study only *after* they have been exposed to an intervention. The post-test allows the researcher to evaluate the effects of the intervention on specific outcomes.

Professional audience impact: A benefit expected to emerge as a result of participation by ISE professionals in your project. These impacts should be specific, realistic, measurable, and achievable through your project's deliverables and strategies. Examples of professional audience impacts include acquisition of new knowledge or skills, and the development or implementation of specific practices that are designed to improve an institution's ability to engage informal learners.

Project focus: The specific subject area in which the project is seeking to increase knowledge within the target audience.

Public audience impact: A benefit expected to emerge as a result of an informal learner's participation in your project. These impacts should be specific, realistic, measurable, and achievable through your project's deliverables and strategies. When determining impacts, it should be noted that these do not include such factors as the number of participants; rather, an impact is defined as what occurs as a result of their participation. Examples of impacts include (1) gains in knowledge or acquisition of new skills (e.g., viewers have increased comprehension of specific scientific concepts when compared with non-viewers), (2) changes in behavior (e.g., access website following museum visit), and (3) changes in attitudes (e.g., survey results indicating greater interest in science).

Quasi-experimental design: A study design that measures the intervention's effect by comparing outcomes for treatment participants with outcomes for a comparison group (that was not exposed to the intervention), chosen through statistical methods other than random assignment—e.g., comparison-group study with equating (statistical controls and/or matching techniques are used to make the intervention and comparison groups similar in their pre-intervention characteristics) or regression-discontinuity study *(*individuals are assigned to intervention or comparison groups solely on the basis of a "cutoff" score on a pre-intervention measure.

Strategic impact: A longer-term outcome affecting the field of informal STEM education in addition to the public or professional impacts on target audiences. Strategic impacts may be achieved through new approaches, strategies, models, findings, or other means designed to advance the systems or institutions that promote informal learning. It may not be measurable during the grant period.

Summative evaluation: This type of evaluation assesses the program's success in reaching its stated goals. It takes place after the program has been established and the time frame posited for change has occurred. Summative evaluation collects information about outcomes and related processes, strategies, and activities that have led to them and is an appraisal of worth, value, or merit. This type of evaluation is often used for decision-making purposes (e.g., whether to continue funding, whether to disseminate the program to other settings) and is usually conducted by an external or otherwise objective and unbiased evaluator.

Target audience: A target audience is defined as the specific segment of the population that the project is intended to reach. There may be more than one target audience in a single project.

Time Series: This type of evaluation design refers to a set of ordered observations on a quantitative characteristic of an individual or collective phenomenon taken at different points in time. Usually the observations are successive and equally spaced in time.