

# Informal Science Education (ISE)

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## PROGRAM SOLICITATION

NSF 10-565

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**REPLACES DOCUMENT(S):**

NSF 09-553

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**National Science Foundation**

Directorate for Education & Human Resources  
Research on Learning in Formal and Informal Settings

**Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. proposer's local time):

July 22, 2010

except CRPA proposals (which do not require preliminary proposals)

**Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

December 07, 2010

except CRPA proposals (which do not have deadlines)

## IMPORTANT INFORMATION AND REVISION NOTES

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The due dates for the ISE program have been changed from those in [NSF 09-553](#).

The description of the program has changed.

Some elements of the proposal preparation process have changed.

The types of supplementary documents that can be submitted with a proposal have been changed.

Please be advised that the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) includes revised guidelines to implement the mentoring provisions of the America COMPETES Act (ACA) (Pub. L. No. 110-69, Aug. 9, 2007.) As specified in the ACA, each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see the PAPP Guide Part I: *Grant Proposal Guide* Chapter II for further information about the implementation of this new requirement).

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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**Program Title:**

Informal Science Education (ISE)

**Synopsis of Program:**

The ISE program supports innovation in anywhere, anytime, lifelong learning, through investments in research, development, infrastructure, and capacity-building for STEM learning outside formal school settings.

**Cognizant Program Officer(s):**

- Address Questions to the Program, telephone: (703)292-8616, email: [DRLISE@nsf.gov](mailto:DRLISE@nsf.gov)

**Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):**

- 47.076 --- Education and Human Resources

### Award Information

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**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 46 Approximately 8 Research, 8 Pathways, 17 Full-Scale Development, 3 Broad Implementation, and 10 Communicating Research to Public Audiences awards will be made per year.

**Anticipated Funding Amount:** \$25,000,000 in FY 2011 for new awards, pending availability of funds.

## Eligibility Information

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### Organization Limit:

None Specified

### PI Limit:

For Communicating Research to Public Audiences projects ONLY: PI must hold an active NSF-funded research award in any NSF directorate or program.

### Limit on Number of Proposals per Organization:

None Specified

### Limit on Number of Proposals per PI:

None Specified

## Proposal Preparation and Submission Instructions

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### A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at:  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg).
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at:  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide))

### B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

### C. Due Dates

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. proposer's local time):  
July 22, 2010  
except CRPA proposals (which do not require preliminary proposals)
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):  
December 07, 2010  
except CRPA proposals (which do not have deadlines)

## Proposal Review Information Criteria

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**Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

## Award Administration Information

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**Award Conditions:** Standard NSF award conditions apply.

**Reporting Requirements:** Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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## I. INTRODUCTION

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### About the National Science Foundation and the Directorate for Education and Human Resources

The National Science Foundation (NSF) is charged with promoting the vitality of the nation's science, technology, engineering and mathematics (STEM) research and education enterprises. As part of this mission, the Directorate for Education and Human Resources (EHR) has primary responsibility for providing national and research-based leadership in STEM education. EHR emphasizes six themes in fulfilling this responsibility:

1. Furthering public understanding of science and advancing STEM literacy;
2. Broadening participation to improve workforce development;
3. Promoting learning through research and evaluation;
4. Promoting cyberlearning strategies to enhance STEM education;
5. Enriching the education of STEM teachers; and
6. Preparing scientists and engineers for tomorrow.

To address these themes, the Directorate sponsors programs in the Divisions of Research on Learning in Formal and Informal Settings (DRL), Undergraduate Education (DUE), Graduate Education (DGE), and Human Resource Development (HRD). The ISE program is managed in DRL.

### The Division of Research on Learning in Formal and Informal Settings

DRL invests in projects to enhance STEM learning for people of all ages in both formal and informal learning settings. Its mission includes promoting innovative and transformative research and development, and evaluation of learning and teaching in all STEM disciplines. New and emerging areas of STEM must play prominent roles in efforts to improve STEM education. The integration of cutting-edge STEM content and the engagement of scientists, engineers, and educators from the range of disciplines represented at NSF is encouraged in all DRL initiatives. DRL's role is to be a catalyst for change by advancing theory, method, measurement, development, evaluation, and application in STEM education. The Division seeks to support both development of promising new ideas and large-scale implementation of proven educational innovations. The Division's programs offer a set of complementary approaches for advancing research, development, and improvement of practice.

- The Informal Science Education (ISE) program supports innovation in anywhere, anytime, lifelong learning, through investments in research, development, infrastructure and capacity-building for STEM learning outside formal school settings.
- The Innovative Technology Experiences for Students and Teachers (ITEST) program invests in projects designed to address the growing demand for professional and information technology workers through the design, implementation, scale-up, and testing of technology-intensive educational experiences for students and teachers, and through related research studies.
- The Discovery Research K-12 (DR-K12) program enables significant advances in preK-12 and teacher learning of the STEM disciplines through research and development on innovative resources, models, and technologies for use by students, teachers, administrators and policy makers.
- The Research and Evaluation on Education in Science and Engineering (REESE) program advances research at the frontiers of STEM learning, education, and evaluation, in order to provide foundational knowledge for improving STEM teaching and learning at all educational levels and in all settings.

Each of these programs is intended to improve their field's capacity to further STEM learning. They are central to NSF's strategic goals of Learning and Discovery, helping to cultivate a world-class, broadly inclusive STEM workforce, expanding the scientific literacy of all citizens, and promoting research that advances the frontiers of knowledge (NSF, 2006). While the ISE program solicitation focuses primarily on informal STEM education, other DRL solicitations promote related aspects. PIs are encouraged to study all DRL solicitations for their applicability.

### DRL and Innovation

All research and development activities within DRL aim at generating knowledge and transforming practice in STEM education. DRL's programs are designed to complement each other within a cycle of innovation and learning (see Figure 1) that forms the conceptual framework for its programs (adapted from American Statistical Association, 2007; NSF, 2005; RAND, 2003). All DRL programs are concerned with all five components of the cycle, to different degrees.

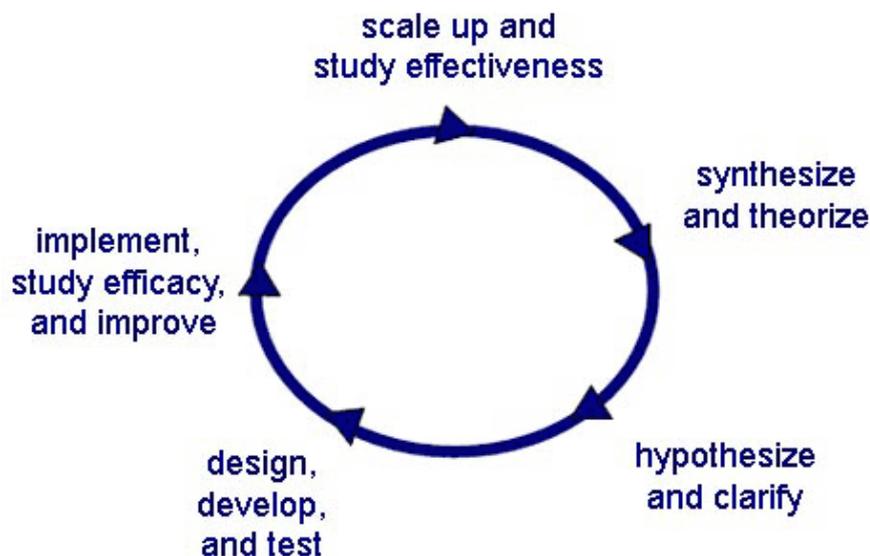


Figure 1. Cycle of Innovation

Each part of the cycle forms the vital and compelling foundation for transition to the next part of the cycle. The research, development, implementation and evaluation activities need to be appropriately rigorous.

Projects funded by DRL are providing the ideas, resources, and human capacity to advance STEM learning and education in the 21st century:

- Challenging the STEM education and research communities with transformative ideas
- Conducting the pioneering and pragmatic research necessary to advance STEM learning
- Developing and studying world-class learning resources for teachers, students, and the public
- Addressing workforce needs through the design and study of technology-intensive educational experiences.

## II. PROGRAM DESCRIPTION

### A. Informal Science Education Program

“Informal” science education, which occurs outside formal school settings and across all ages, plays an increasingly vital role in the 21st century educational landscape. Americans spend over 80% of their lifetime waking hours outside schools (Stevens & Bransford, 2007), and have access to a vast array of learning resources, experiences, and educators.

As information networks, mobile media, and social networks transform educational possibilities, they are creating a seamless global learning environment. Within this context, informal settings are ideally situated for research and development of STEM learning. The informal science education field presents great opportunities along with associated challenges, including the following:

**Ubiquity:** Almost any environment can support informal science education, such as a home, a museum, a street, a virtual or augmented reality game. This strength creates a challenge of continuity: How can learners be supported to make conscious and strategic bridges between what they learn in one setting and another, to be cumulative over their lifetimes?

**Equity:** Informal environments are, in principle, accessible to all learners, and evidence suggests they have particular potential for supporting learners from nondominant groups (National Research Council, 2009). How can the field capitalize on this potential, exploring new community partnerships and creating learning experiences that are relevant and inclusive for all learners?

**Compelling experiences:** Informal settings typically offer learners direct access to compelling and even unique phenomena in the natural and designed world, and powerful representations of those phenomena. How can learners participate in the less accessible aspects of scientific practice, such as reflection, abstraction, or grappling with scientific principles? How can learners be supported to engage in all aspects of science learning?

**Flexible assessment:** In informal environments, learners advance and share their knowledge voluntarily, without the constraints of mandated curricula and high-stakes tests. How can such unconstrained learners be supported to demonstrate what they know and can do, in ways that are seen as legitimate by themselves and others?

**Abundance of educators:** Ubiquity, digital networks, and lack of formal accreditation procedures mean that anyone with appropriate expertise can facilitate STEM learning in the informal world. What can be done to develop and support a network of professional development opportunities to take advantage of this enormous resource?

**Nimbleness:** The informal science education sector is agile, able to adapt quickly to new knowledge, systems, and opportunities. At the same time it consists of many distinct, independent entities and communities. How can increased coherence of effort and impact be achieved?

The ISE program encourages proposals that move the field forward by building on these strengths, and addressing these and other challenges through research and evaluation, design and development, infrastructure, and capacity-building.

**Research and evaluation:** The ISE program seeks to build the theoretical and empirical foundations for effective informal STEM learning; to advance the assessment of such learning; and to support the application of innovative methods to address questions of importance to those who live or work in informal science education settings. Investigators proposing to conduct research about informal STEM learning should clearly articulate the importance

of such research to the informal science education field, the specific approaches that will be used, and how the research process and findings would be evaluated and disseminated. Researchers are encouraged to involve informal learning practitioners as partners in their projects. Evaluation is another means by which the field advances, assessing the effectiveness of various models and approaches, and is a required component of all projects.

**Design and development:** Investment in models, resources, and programs for STEM learning throughout the lifespan is a core element of the ISE program. Proposals can utilize a broad range of communication formats and experiences, such as mobile and broadcast media, virtual learning environments, exhibitions, films, citizen science, and after-school and/or out-of-school programs. Particularly encouraged are cross-format proposals that help learners identify and navigate among multiple resources, both new and existing, to develop their own STEM-related identities over time. Investigators proposing to develop models, products or tools should make a case for the innovative contributions of such deliverables. They should provide a plan for the systematic evaluation of their effectiveness and a plan for substantial dissemination of promising practices for engaging the public in STEM learning.

**Infrastructure:** The ISE program also encourages individual proposals to take a systemic perspective in reaching public or professional audiences. This could involve building innovative platforms with multiple uses, creating virtual organizations, utilizing scientific networks, building cross-sector partnerships, or developing connections among the wealth of existing informal science education resources in the physical and online worlds. Such approaches advance the field toward a more seamless informal learning infrastructure in which participants can learn anywhere and anytime, and are deliberately supported to deepen their STEM expertise over their lifetimes.

**Capacity-building:** The ISE program seeks proposals to build the STEM and education expertise of informal science education's broad community of professionals, volunteers, parents and caregivers, and all those with potential to facilitate the learning of others. Proposals with a capacity-building aspect should make a case for the innovation in the approach and the strategic importance of involving the particular community targeted by the proposal. Proposers should also provide a plan for the systematic evaluation of the capacity-building outcomes and the dissemination of contributions to knowledge building in informal STEM learning and education. The program particularly encourages proposals that have the potential to transform informal STEM learning, to diversify the field, or support broader use of existing research, evaluation, and best practices. Partnerships among creators of informal science education experiences, STEM experts, and learning researchers are highly desirable.

A number of fruitful and important directions for future research, development and capacity building efforts can be found in the National Research Council reports *Learning Science in Informal Environments: People, Places, and Pursuits* (National Research Council, 2009) and *Surrounded by Science* (National Research Council, 2009), and in *Fostering Learning in the Networked World: The Cyberlearning Opportunity and Challenge* (NSF, 2008).

Appropriate STEM content can be drawn from any NSF STEM research program, including the behavioral and social sciences. Proposers are encouraged to take advantage of the expertise and potential resources available from NSF-funded research projects in any of the Foundation's research directorates and offices. Proposers are encouraged to consider STEM topics that are of particular relevance to their target audiences, of broad societal concern (e.g., energy, sustainability), are foundational to understanding such issues (e.g., dynamic systems) or are at important intersections of STEM disciplines, arts, and humanities.

The ISE program also supports efforts to respond to issues of national importance in STEM education, such as building links between formal and informal learning settings, using informal science resources to support learning progressions in STEM content areas, reducing the boundaries between research and practice, and inspiring learners to become future innovators. The program supports efforts such as these that seek to build toward a seamless infrastructure of lifelong STEM learning.

## B. ISE Project Types

Like all NSF programs, ISE invests in Conferences, Symposia, and Workshops; EAGER and RAPID grants; and Grant Supplements for existing awards (see GPG). The ISE program also invests in five types of projects that are specific to the program: **Research; Pathways; Full-Scale Development; Broad Implementation, and Communicating Research to Public Audiences.** These project categories relate to the DRL cycle of innovation, as mentioned above, and are not listed in any order of priority. Although all proposals should have a foundation of prior work and research, the cycle sequence is not meant to be taken literally. For example, Full-Scale Development projects must build on extant literature and the state of the informal learning field, but they do not necessarily require completed prior Research or Pathways projects.

1. **Research projects** contribute to the "hypothesize and clarify" and "synthesize and theorize" components of the DRL cycle of innovation. Their primary goal is to advance knowledge in the informal STEM learning field rather than to develop specific deliverables for implementation. A research project may involve the creation of new learning resources, applications, media, artifacts, programs, or environments if these are necessary to answer the research questions or test hypotheses that are posed. However, the primary objective is to answer the research question, not to produce such learning resources. Research projects may be empirical studies, methodological advances, or theoretical studies intended to move the field forward. They might develop innovative approaches for assessing societal, economic, or learning impacts of informal science activities. Of particular interest are projects to develop, validate, and disseminate assessment tools, especially if these have potential utility for a group of related projects and activities in the informal science education field. Also strongly encouraged are projects that synthesize existing research or evaluation studies, or that study learners across multiple or distributed settings and over time.

ISE Research projects are distinguished from proposals submitted to the REESE program by their emphasis on the connections to practice in informal science education. For this reason, they should involve informal learning organizations and practitioners as active partners. ISE program Research projects should be grounded in academic literatures that are relevant to their questions, but should also draw from relevant evaluations and the wisdom of practice. Research projects should have direct implications for learners, care-givers, practitioners, designers, policymakers, or professionals and volunteers who communicate science or science education to others.

Research projects can be funded for up to \$1.5 million and five years in duration.

2. **Pathways projects** relate to the "design, develop, and test" component of the DRL cycle of innovation. They include planning activities, pilot studies, and feasibility studies, or, in general, innovative work that is on a path toward a major project (Research, Full-Scale Development, or Broad Implementation) but that needs to address critical issues or decisions before major projects can be formulated. Pathways projects can be on the path toward any type of informal science education activity that would be appropriate for ISE program funding based on this solicitation. Examples include: demonstration of the proof of concept of a new technology; audience front-end evaluation where there is a significant gap in the literature; a focused planning effort for a large complex collaboration, especially where the collaborators may be from different professional communities; early-stage development of new assessment instruments; and pilot programs for broadcast media. Pathways proposals should be more focused than general planning work normally required for submission of a major proposal, and should result in lessons learned that can inform

the informal science education field as well as the project team. Not all of the Pathways projects will necessarily result in a subsequent proposal. However, for those that do, the results and implications of the Pathways work must be explicitly described in the subsequent proposal.

Pathways projects can be funded for up to \$250,000 and two years in duration.

3. **Full-Scale Development projects** relate to the "implement, study efficacy, and improve" component of the DRL cycle of innovation. The main purpose of these projects is to generate an innovative idea or approach to informal science education, create a full working version, and evaluate its effectiveness. Such initiatives can enhance STEM learning by the public, increase capacity of the professional audience, contribute to the informal science education infrastructure, or embrace several of these goals. For public audiences, such projects typically involve communication mechanisms such as exhibitions, television, radio, film, youth and community educational programs, citizen science programs, or a range of emerging technologies. For professional audiences, projects can build capacity in the field by creating resources, professional development pipelines, or networks that help professionals, volunteers, parents or caregivers to support STEM learning by others. Particularly encouraged are projects that contribute to a stronger infrastructure by leveraging resources to achieve multiplicative impacts: creating platforms that can be utilized by large sectors of the field, or enabling learners to participate in STEM learning across different learning settings.

While many Full-Scale Development projects create complete STEM learning resources, programs, or experiences, they need to be guided by an explicit conceptual framework and should generate significant knowledge about impact, efficacy, or effectiveness. The ISE program's expectation is that the final products of Full-Scale Development projects will make innovative contributions to the field. They can include research components if tightly coupled to the products or programs being developed. Full-Scale Development proposals typically will be funded in the \$1 million to \$3 million dollar range and may be up to five years in duration.

4. **Broad Implementation projects** relate to the "scale up and study effectiveness" component of the DRL cycle of innovation, proposing strategies for maximizing prior investments in informal STEM education. Projects are expected to substantially broaden the reach of products or programs in the informal science education field that have demonstrated success with the audience they already reach. Definitions of expanded reach may include, but are not limited to, geography, age, socio-economic status, cultural / linguistic group, gender, or learning setting. Proposers are particularly encouraged to consider underrepresented groups as target audiences. Broad Implementation projects will generally, but not exclusively, extend work done with prior ISE program funding. Such prior work may have been conducted by the institution(s) submitting the proposal or by others (assuming intellectual property rights are not infringed). Combining and extending the educational products of more than one prior project is encouraged if such a combination may significantly increase the intended impact.

Broad Implementation proposals must describe substantive evidence from summative evaluations or efficacy studies that the already-developed educational products are effective with some populations or in some settings and are ready for wider distribution to a broader population or new setting(s). It is likely that such projects will involve innovative integration or incremental improvements or adaptations.

Broad Implementation projects will normally be funded in the \$1 million to \$3 million dollar range and may be up to five years in duration. In order to encourage wide distribution, budgets may include up to \$500,000 for making these products available to interested organizations and communities at no cost or with much reduced costs.

4. **Communicating Research to Public Audiences (CRPA)** projects relate to the "implement, study efficacy, and improve" component of the DRL cycle of innovation by proposing informal learning activities based on currently funded NSF research. CRPA projects must be based on active research projects in good standing in any NSF directorate or office.

Effective projects disseminate research findings and promote the general public's STEM learning, especially understanding of and engagement with cutting-edge research findings and methodologies. As with other categories of ISE awards, CRPA's may include the design and implementation of any combination of communication formats and experiences that support informal learning. While these projects will be less extensive than Full-Scale Development projects, they should be similarly guided by an explicit conceptual framework. The proposal should clearly describe the NSF-funded research upon which the project is based, the educational need that will be met, and the informal learning strategies that will be employed to engage the targeted public audiences. ***Collaboration between NSF-funded researchers and informal science organizations is strongly encouraged to ensure use of effective practices.***

CRPA proposals can be a maximum of \$150,000 and up to two years in duration. The award size, however, will be consistent with the project scope and the size of the original research award. Because CRPA's are responsive to research awards from any part of NSF, they may be submitted at any time and do not require preliminary proposals.

#### C. Other Funding Opportunities

Like other NSF programs, the ISE program also funds Conferences, Symposia, and Workshops; EAGER and RAPID grants; and Grant Supplements for existing awards. Such proposals may be submitted at any time, as described in the Grant Proposal Guide (GPG), which is available at <http://www.nsf.gov> by searching for "current GPG."

- **Conferences, Symposia and Workshops.** See GPG, II.D.8.
- **Early-concept Grants for Exploratory Research (EAGER).** See GPG II.D.2
- **Grants for Rapid Response Research (RAPID).** See GPG, II.D.1.
- **Early Career Development (CAREER)**  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08557](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08557)
- **Climate Change Education Partnership (CCEP).**  
[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503465](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503465)
- **Cyber-Enabled Discovery and Innovation (CDI).**  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf10506](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf10506)
- **Virtual Organizations as Sociotechnical Systems (VOSS).**  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf09540](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09540)

#### D. Resources and References

##### Resources

<http://www.nsf.gov/>: Information about the NSF Education and Human Resources (EHR) Directorate and the

Division of Research on Learning in Formal and Informal Settings (DRL).

<http://www.aise.insci.org/>: General resource for informal science education professionals. Includes Frequently Asked Questions section where information can be found about the Informal Science Education proposal process, deadlines, and evaluation.

<http://www.informalscience.org/>: Resource for research, evaluation, and techniques related to informal science learning, as well as examples of projects in informal STEM education.

<http://www.exhibitfiles.org/>: Resource for exhibit developers.

<http://www.cpb.org/>: Resources for media professionals.

<http://www.scienceafterschool.org/index>: Resources compiled by The Coalition for Science After School.

<http://www.citizen-science.org/>: Information about citizen science and related projects.

<http://www.nsdlib.org/>: Online digital library for STEM education and research.

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08204](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204): Fostering Learning in the Networked World: The Cyberlearning Opportunity and Challenge. A 21st Century Agenda for the National Science Foundation, Report of the NSF Task Force on Cyberlearning, June 24, 2008.

#### References

American Statistical Association (2007). *Using statistics effectively in mathematics education research*. Retrieved March 27, 2009, from <http://www.amstat.org/education/pdfs/UsingStatisticsEffectivelyinMathEdResearch.pdf>.

Borgman, C.L., Abelson, H., Dirks, L., Koedinger, K., Linn, M., Lynch, C., et al. (2008). *Fostering learning in the networked world: The cyberlearning opportunity and challenge*. Retrieved March 27, 2009, from [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08204](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204).

Friedman, A. (Ed.). (2008). *Framework for evaluating informal science education projects*. Retrieved March 27, 2009, from [http://aise.insci.org/uploads/docs/Eval\\_Framework.pdf](http://aise.insci.org/uploads/docs/Eval_Framework.pdf).

National Research Council (2009). *Learning science in informal environments: People, places, and pursuits*. Washington, D. C.: The National Academies Press.

National Research Council (2009). *Surrounded by Science*. Washington, D.C.: The National Academies Press. [http://www.nap.edu/catalog.php?record\\_id=12614](http://www.nap.edu/catalog.php?record_id=12614)

National Science Foundation (2005). *The mathematics education portfolio brief, (NSF 05-03)*. Retrieved March 27, 2009, from.

National Science Foundation (2006). *Investing in America's future: Strategic plan FY 2006-2011 (NSF 06-48)*. Retrieved March 27, 2009, from.

RAND Mathematics Study Panel (2003). *Mathematical proficiency for all students: Toward a strategic research and development program in mathematics education*. Santa Monica, CA: RAND Corporation.

Stevens, R. & Bransford, J. (2007). The LIFE Center's Lifelong and Lifewide Diagram. In Banks, J. A. (ed.), *Learning in and out of school in diverse environments: Life-Long, Life-Wide, Life-Deep*. Seattle, WA: UW Center for Multicultural Education.

### III. AWARD INFORMATION

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The ISE program expects to make approximately 46 awards based on anticipated funding of \$25 million in FY 2011 for new awards. It is anticipated that approximately 8 Research, 8 Pathways, 17 Full-Scale Development, 3 Broad Implementation, and 10 Communicating Research to Public Audiences awards will be made as Standard or Continuing Grants per year, pending availability of funds.

Duration and Funding Levels:

Research: Project duration from one to five years. The maximum award is \$1,500,000.

Pathways: Project duration is up to two years. The maximum award is \$250,000.

Full-Scale Development: Project duration may be from one to five years. Full-Scale Development proposals will normally be funded in the \$1 million to \$3 million dollar range.

Broad Implementation: Project duration may be from one to five years. Broad Implementation proposals will normally be funded in the \$1 million to \$3 million dollar range.

Communicating Research to Public Audiences: Project duration may be up to two years and the maximum award is \$150,000.

### IV. ELIGIBILITY INFORMATION

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#### Organization Limit:

None Specified

#### PI Limit:

For Communicating Research to Public Audiences projects ONLY: PI must hold an active NSF-funded research award in any NSF directorate or program.

#### Limit on Number of Proposals per Organization:

None Specified

**Limit on Number of Proposals per PI:**

None Specified

**Additional Eligibility Info:**

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the [Grant Proposal Guide](#), Chapter I, Section E.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**Preliminary Proposals (required):** Preliminary proposals are required and must be submitted via the NSF FastLane system. Communicating Research to Public Audiences proposals do not require preliminary proposals.

#### PRELIMINARY PROPOSALS

Preliminary proposals must be submitted in FastLane no later than 5:00 p.m. local time on the due date immediately prior to the full proposal submission date. They are required even in the case of a resubmission of a proposal that has been previously declined. In the case of a resubmission, the proposal must be substantially revised. **A new preliminary proposal is required for each round of competition.**

The response to a preliminary proposal is either to encourage or discourage submission of a full proposal based on assessment by reviewers of the likelihood that such a proposal will be competitive. This assessment is advisory, and full proposals may be submitted in either event. Written reviews provide feedback to PIs to strengthen their proposals. It is expected that proposals that are encouraged will continue to be clarified and some modifications may be made leading up to the submission of the full proposal; however, the basic concept and structure of the project must remain essentially the same.

The following instructions apply to preliminary proposals submitted to the ISE program:

Submission of a preliminary proposal requires completion of the following forms in FastLane. No additional NSF forms are required.

1. **Cover Sheet. Be sure to include the program solicitation number and to check the Preliminary Proposal box.** The project title must begin by identifying of the kind of project: Research; Pathways; Full-Scale Development; or Broad Implementation.
2. **Project Summary.** The Project Summary is limited to one single-spaced page. The Project Summary is a critical proposal element that must make the essence of the project clear to the reviewer. It must succinctly identify the project's Intellectual Merit and Broader Impacts in separate sections under these two headings. **If Intellectual Merit and Broader Impacts are not explicitly identified, or if the Project Summary is longer than one page, the proposal will be returned without review.**
3. **Project Description.** The narrative is a condensed version of the Project Description for a full proposal. **The first sentence must identify the kind of project: Research; Pathways; Full-Scale Development; or Broad Implementation.** It is limited in length to **six single-spaced pages**. It must identify the essential features of the project using the same category headings as for full proposals.
4. **Budget** (including Justification). The support requested from NSF should be entered in the budget forms generated in FastLane. It is not necessary to enter the budget for each year; an overall cumulative budget for the project is sufficient for a preliminary proposal.
5. **Supplementary Documents.** Additional documents will NOT be accepted for preliminary proposals.

**Other FastLane forms (i.e., References, Biographical Sketches, Current and Pending Support) should NOT be submitted.**

**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

**Collaborative Proposals.** All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

If a proposal is resubmitted after being previously declined, it must be substantially revised, responding to concerns raised in the written reviews and panel summary. If not, the proposal will be returned without review. For full proposals based on previous Pathways Grants, the Final Report must have been submitted by the full proposal deadline date.

All proposals must include: Cover Sheet, Project Summary, Project Description (Narrative), References Cited, Biographical Sketches, Budgets (including Justification), Current and Pending Support, and Supplementary Documents (if applicable). Specific requirements for the ISE program that supplement the GPG and NSF Grants.gov Application Guide guidelines are described below. See section 7, Supplementary Documents, for allowable information.

## 1. Cover Sheet

Proposers are reminded to include the number of this solicitation. Failure to do so will delay processing of the proposal. (Grants.gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.) Proposals that require preliminary proposals **must have the preliminary proposal number entered into the appropriate box on the Cover Sheet**. The project title must begin by identifying the kind of project: **Research; Pathways; Full-Scale Development; Broad Implementation; or CRPA**. Proposers should refer to the NSF Grant Proposal Guide for information related to human subjects research.

## 2. Project Summary

The Project Summary is limited to one page and is a critical proposal element that must make the essence of the project clear to the reviewer. **The first sentence must identify the project type: Research; Pathways; Full-Scale Development; Broad Implementation or Communicating Research to Public Audiences** It must succinctly identify the project's Intellectual Merit and Broader Impacts in separate sections under these two headings. **If Intellectual Merit and Broader Impacts are not explicitly identified in the project summary, the proposal will be returned without review.**

## 3. Project Description (Narrative)

**The first sentence must identify the project type: Research; Pathways; Full-Scale Development; Broad Implementation or Communicating Research to Public Audiences.**

For consideration by the ISE program, **the Project Description must explicitly address all of the areas below**. The Project Description is limited to 15 single-spaced pages in length. Pay particular attention to the NSF typeface and font size requirements in the GPG.

### a. Project Rationale

In this section the proposers should describe the primary project goals, hypotheses, research questions, or issues being addressed, and the strategy or approach that will be undertaken. They should clearly identify the STEM focus and make a case for its relevance, the nature and importance of the proposed work, and the challenges addressed, as appropriate. The investigators must identify the audience, justify their approach as appropriate for that audience, and articulate the intended outcomes. *Proposers must explain in what ways the project will advance knowledge, practice, capacity, or other critical aspects of informal STEM learning.* They must also explain how the proposed project builds upon the pertinent literature, prior practice, or research of others and of the team.

*Results of Prior NSF Support of the PI or co-PIs within the past five years:* If the PI or co-PIs have received relevant prior NSF funding, the outcomes of such work should be described in sufficient detail for reviewers to assess the quality of prior efforts and how those relate to the proposed work. If a proposal is based on a prior Pathways project, the findings and accomplishments of that project must be clearly specified, *along with the award number and PI name.*

### b. Project Design

As appropriate to the project type, the proposers should describe the research design, development, adaptation, or implementation plans; or other approaches to be used in accomplishing the project objectives. Anticipated deliverables should be clearly specified. Intended learning outcomes and impacts on the field should be described. For proposals that involve creation of educational resources or tools, proposers should describe innovative strategies for effective dissemination and preferably co-development of such materials with targeted audiences. For research projects, specific methodology and processes should be discussed and a case made that these methods or processes are systematic and suitable. For empirical research, data sources, audiences, methods for piloting and designing, instruments, outcome measures, and analysis plans should be specified.

The goals of many projects will include distribution of the developed exhibitions, TV productions, and other products. Proposals with these goals should describe the distribution mechanisms and marketing plans to reach intended audiences. Proposers are encouraged to explore creative ways to achieve broader impacts.

Proposals in all categories should include creative plans, leveraging a range of extant technologies, for effectively sharing lessons learned and other information about the project as widely as possible to interested professional communities and other groups, including both academic researchers and practitioners.

*All proposals must include an appropriate evaluation plan.* See the *Framework for Evaluating Impacts of Informal Science Education Projects (Framework)*, available at <http://www.aise.insci.org/>, for guidance. Materials to help in the development of project impacts and indicators are also available on this website.

*Research* projects may be evaluated by an advisory board or other expert group that periodically reviews and reports in writing to the Principal Investigator on the progress of the team.

*Pathways* projects must include an evaluation of what was learned over the course of the project that would inform decision making for subsequent proposals by the project team or others in the field. Lessons learned should include positive and negative findings, with discussion.

*Full-Scale Development* projects must include a summative evaluation conducted by an external evaluator. In addition, other types of evaluation, such as *front-end evaluation, formative evaluation, and remedial evaluation*, should be included as appropriate.

*Broad Implementation* projects must include a summative evaluation conducted by an external evaluator. The evaluation should assess the effectiveness of adaptations to achieve broader dissemination and indicate the quality of the STEM learning experience compared with the original program. The investigator must report some measure of the project output (such as the number of new learners or communities reached). We encourage investigators to create new approaches to conceptualizing the magnitude of a project's impact.

*Communicating Research to Public Audiences* projects should include an evaluation plan that is commensurate with the scope and depth of the proposed activities. They must include a summative evaluation conducted by an external evaluator.

**Note with respect to Institutional Review Board (IRB) Processes:** Most proposals to this solicitation involve research or evaluation studies that will require review by the submitting organization's IRB. In some cases, the IRB letter will indicate an exemption from IRB review. In other instances, the project timeline may require that study protocols cannot be finalized until some period after the project has been initiated, and the IRB letter should so indicate. Information about human subject research can be found in the NSF Grant Proposal Guide (GPG).

#### c. Project Management

*In this section, proposers must explain how the project team and/or partner organizations will work collaboratively to achieve the deliverables and produce impacts that would not otherwise be possible.* Investigators should describe the members of team, the collaborators, the senior personnel, advisory committee members, consultants, and contractors and how they provide the relevant experience in STEM content, informal science learning, knowledge of target audiences, media, research, and evaluation. The proposal should include a scheduled plan of work with major milestones for key project tasks. If appropriate, a logic model or flow chart of the project can be presented in this section, including inputs, activities, outputs and outcomes.

#### 4. References Cited

Proposals should include references to relevant research literature in informal learning and other areas that support the proposed strategies, approaches and evaluation.

#### 5. Budgets

All budget requests must be consistent with the project scope and duration. All budgets (grantee and subawards) must be accompanied by Budget Justifications that include itemizations corresponding to each FastLane or Grants.gov budget line item. Requested equipment must be essential components of project deliverables, such as exhibits. If personnel expenses are entered in section B.1. of the budget—postdoctoral scholars—a one-page postdoctoral mentoring plan is required in the supplementary documents (see GPG).

**Include under Travel (Line E on the FastLane budget and Field D on the Grants.gov budget) the cost for the PI to attend a two-day meeting annually at NSF.**

Each subaward on line G.5 (Field F.5 for Grants.gov users) requires a complete set of Proposal Budget forms accompanied by a Budget Justification that includes the basis for selecting the subawardee as well as itemization of expenses and explanations.

#### 6. Other Forms

**Biographical Sketches:** Sketches must be provided for the PI, co-PIs, and other senior project personnel. These sketches need not follow a prescribed format, but must be limited to two pages per person. Biographical sketches should be sufficiently detailed to show that the necessary expertise is available to conduct the project.

**Current and Pending Support:** Required for the PI, co-PIs, and senior project personnel. The proposal being submitted should be listed first and identified as *pending*.

**Facilities, Equipment & Other Resources:** Not required for ISE proposals.

#### 7. Supplementary Documents

The 15-page Project Description must provide sufficient information for reviewers to make reasoned judgments about the proposed work.

All ISE proposals that include funding for Postdoctoral researchers **must** submit a one-page Mentoring Plan in the supplementary documents section otherwise the proposal will be returned without review.

All ISE proposals are allowed to submit as Supplementary Documents:

- Letters of commitment from consultants, advisors, and organizational partners indicating their roles in the project.
- Documentation of commitment or interest from any distributors of materials that are key to its dissemination, such as hosts of traveling exhibitions or major media outlets.
- Executive summaries of formative and summative evaluation findings of prior work (3 page maximum).
- Details of evaluation plans for the proposed work (5 page maximum), plus impacts and indicators worksheets, and summary logic models, as appropriate.

In addition, it may be necessary to provide a **limited** amount of additional supporting information in Supplementary Documents, in order to give reviewers a more visual or textured sense of the materials that will be created. Examples are exhibition floor plans or activity plans, sample treatments or scripts from broadcast materials, webpage designs, or sample storyboards from games. Because reviewers may be asked to assess a substantial number of competing proposals, PIs must be **extremely judicious** in the number of pages submitted. **In most cases PIs should submit executive summaries and illustrative samples of materials rather than complete reports or descriptions.**

For deliverables that involve media that cannot be represented on the printed page:

- Only media that cannot be submitted in Supplementary Documents may be provided as DVD or CD: 15 copies labeled with proposal number, title, and PI, must be sent to: Informal Science Education Program, EHR/DRL, Room 885, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230 [phone: (703) 292-8616]. These materials, which will not be returned, must be received within 5 business days following electronic submission; clearly mark the package *re: Supplementary Documents* and indicate the proposal number.

Note: Supplementary Documents are distinct from Appendices, as stipulated in the Grant Proposal Guide: Appendices may not be included unless a formal deviation has been authorized. See GPG Chapter II.A for more information about deviations.

## B. Budgetary Information

**Cost Sharing:** Cost sharing is not required under this solicitation.

**Other Budgetary Limitations:**

Funding for the following are **not** supported by this program: capital or operating expenses; purchase of major or office equipment; vehicles; undergraduate tuition; paid advertising; admissions or similar fees; operating expenses for school field trips, camps, science fairs or similar competitions; or projects whose primary focus is health or medicine. Budgets cannot include in line items costs already recovered through the organization's indirect cost rate. ISE also does not fund development of a print publication or a curriculum as the primary public deliverable.

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## C. Due Dates

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. proposer's local time):  
July 22, 2010  
except CRPA proposals (which do not require preliminary proposals)
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):  
December 07, 2010  
except CRPA proposals (which do not have deadlines)

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## D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov). The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

**Submission of Electronically Signed Cover Sheets.** The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: <https://www.fastlane.nsf.gov/fastlane.jsp>.

- **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: <http://www.grants.gov/CustomerSupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

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## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

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### A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgments.

**What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

### **What are the broader impacts of the proposed activity?**

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

NSF staff also will give careful consideration to the following in making funding decisions:

#### ***Integration of Research and Education***

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

#### ***Integrating Diversity into NSF Programs, Projects, and Activities***

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

#### **Additional Review Criteria:**

**Each proposal will be reviewed for the strength of the case it makes for its project rationale, design, management, and evaluation. The proposers must clearly demonstrate the significance of the problem being addressed; the innovative ideas being brought to the problem; the quality of the overall team and its collaborative and management processes; and the expected outcomes of the proposed activities.**

## **B. Review and Selection Process**

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Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

## **VII. AWARD ADMINISTRATION INFORMATION**

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### **A. Notification of the Award**

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Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

### **B. Award Conditions**

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An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); \* or Research Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

\*These documents may be accessed electronically on NSF's Website at [http://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the *NSF Award & Administration Guide (AAG)* Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=aag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

## C. Reporting Requirements

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For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

PIs are required to submit final evaluation reports of the project for posting to the web site <http://www.informalscience.org/> (or other sites designated by ISE) as part of submission of the Final Report and (2) provide project data via the ISE program online project management system. PIs may be requested to provide additional project data for ISE program analysis and evaluation

## VIII. AGENCY CONTACTS

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General inquiries regarding this program should be made to:

- Address Questions to the Program, telephone: (703)292-8616, email: [DRLISE@nsf.gov](mailto:DRLISE@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: [support@grants.gov](mailto:support@grants.gov).

For administrative questions contact: the Program by e-mail: [DRLISE@nsf.gov](mailto:DRLISE@nsf.gov) or phone- (703)292-8616

## IX. OTHER INFORMATION

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The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the [NSF web site](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

*Facilitation Awards for Scientists and Engineers with Disabilities* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Division of Administrative Services  
National Science Foundation  
Arlington, VA 22230

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