Math and Science Partnership: Research, Evaluation, and Technical Assistance (MSP RETA)

Program Solicitation
NSF 03-541

National Science Foundation
Directorate for Education and Human Resources

Letter of Intent Due Date(s) ***(optional):***

April 14, 2003

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

May 12, 2003

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Math and Science Partnership: Research, Evaluation, and Technical Assistance (MSP RETA)

Synopsis of Program:

The Math and Science Partnership (MSP) program builds on the nation's dedication to improve mathematics and science education through support of partnerships that unite the efforts of local school districts with faculties of colleges and universities -- especially disciplinary faculties in mathematics, science and engineering -- and with other stakeholders. The MSP program seeks to improve student outcomes in mathematics and science for all students, at all K-12 levels.

This solicitation addresses the research, evaluation, and technical assistance (MSP RETA) component of the MSP program.

The MSP RETA projects are intended to enhance the capacity of the MSP Comprehensive and Targeted (MSP C&T) projects to achieve their goals and to contribute to the development and dissemination of the knowledge base necessary to achieve sustained educational reform. MSP RETA accomplishes its purpose through:

- Theoretically informed, methodologically rigorous projects that contribute to the understanding of the processes that support continuous improvement of K-12 mathematics and science teaching and learning by using the MSP C&T projects as research sites;
- Rigorous, innovative evaluation projects that develop new models and tools for documenting, assessing and assisting MSP C&T projects' progress toward their goals; and
- Technical assistance projects that build on a strong research base and that develop, implement and evaluate both (a) models of support and (b) tools for the MSP projects, particularly in the use of research and data.

Cognizant Program Officer(s):

- Elizabeth VanderPutten, Program Director, Math and Science Partnership, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5147, fax: (703) 292-9046, email: evanderp@nsf.gov
- Bernice T. Anderson, Program Director, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5151, fax: (703) 292-9046, email: banderso@nsf.gov
- Janice M. Earle, Senior Program Director, Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5097, fax: (703) 292-9044, email: jearle@nsf.gov
- Cheryl L. Eavey, Program Director, Directorate for Social, Behavioral & Economic Sciences, Division of Social and Economic Sciences, 995 N, telephone: (703) 292-7269, fax: (703) 292-9068, email: ceavey@nsf.gov
- James E. Hamos, Program Director, Math and Science Partnership, Directorate for Education & Human Resources, 875 S, telephone: (703) 292-4687, email: jhamos@nsf.gov

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

- 47.076 --- Education and Human Resources

Eligibility Information

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant or Cooperative Agreement
- **Estimated Number of Awards:** 15 to 20
- **Anticipated Funding Amount:** $25,000,000 pending availability of funds in FY 2003

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is optional. Please see the full text of this solicitation for further information.
- **Full Proposal Preparation Instructions:** This solicitation contains information that supplements the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Letters of Intent *(optional)*:**
  April 14, 2003
- **Full Proposal Deadline Date(s)** (due by 5 p.m proposer's local time):
  May 12, 2003

Proposal Review Information

- **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

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

TABLE OF CONTENTS

IX. **Other Programs of Interest**

I. INTRODUCTION

The Math and Science Partnership (MSP) program responds to a growing national concern -- the lackluster performance of U.S. children in mathematics and science. *No Child Left Behind*, which enunciates the President's vision for K-12 education, articulates this concern and identifies the main underlying factors for the poor performance of U.S. students: too many teachers teaching out of field, too few students taking advanced coursework, and too few schools offering challenging curricula and textbooks.

MSP builds on the Nation's dedication to improve mathematics and science education through support of partnerships that unite the efforts of local school districts with faculties of colleges and universities -- especially disciplinary faculties in mathematics, science, and engineering -- and with other stakeholders. MSP seeks to improve student outcomes in mathematics and science for all students, at all K-12 levels. As the achievement of students rises, MSP expects to significantly reduce achievement gaps in mathematics and science education among diverse student populations.

To achieve these long-term outcomes, the MSP program supports the development, implementation, and sustainability of promising partnerships among: mathematics, science, engineering, and education faculty and their institutions of higher education; administrators, teachers, and guidance counselors in K-12 schools and school systems; and other important stakeholders to:

- Ensure that all K-12 students have access to, are prepared for, and are encouraged to participate and succeed in challenging curricula and advanced mathematics and science courses;
- Enhance the quality, quantity, and diversity of the K-12 mathematics and science teacher workforce; and
- Develop evidence-based outcomes that contribute to our understanding of how students effectively learn mathematics and science.

To achieve these goals, the MSP program supports Comprehensive and Targeted (MSP C&T) projects, as well as an integrated set of research, evaluation, and technical assistance (MSP RETA) projects. These and other MSP-funded projects constitute the *MSP Learning Network*. The Learning Network is expected to contribute to a stronger knowledge base for educational reform; support the development of a culture of evidence throughout the MSP program; strengthen the integration of research and practice; and contribute to the Nation's capacity to engage in, support, and understand large-scale education innovation. All MSP projects participate in the Learning Network by sharing ideas, findings, and insights.

The Learning Network supports a cycle of discovery, innovation, and application in K-12 educational reform. This involves the continuous interaction of research and evaluation on critical MSP questions; theory development, design and implementation of projects; synthesis and dissemination of findings; and the identification of new research and evaluation questions. The MSP RETA projects are an integral part of this Learning Network.

II. PROGRAM DESCRIPTION

The MSP RETA projects are intended to enhance the capacity of the MSP C&T projects to achieve their goals and to contribute to the development and dissemination of the knowledge base necessary to achieve sustained educational reform. MSP RETA accomplishes its purpose through:

- Theoretically informed, methodologically rigorous projects that contribute to the understanding of the processes that support continuous improvement of K-12 mathematics and science teaching and learning by using the MSP C&T projects as research sites;

- Rigorous, innovative evaluation projects that develop new models and tools for documenting, assessing and assisting MSP C&T projects' progress toward their goals; and

- Technical assistance projects that build on a strong research base and that develop, implement and evaluate both (a) models of support and (b) tools for the MSP projects, particularly in the use of research and data.

For this solicitation, NSF is interested in research, evaluation and technical assistance proposals focused on the five Key Features integral to all MSP C&T projects: (1) *Teacher Quantity, Quality, and Diversity*; (2) *Challenging Courses and Curricula;* (3) *Institutional Change and Sustainability*; (4) *Partnership-Driven*; and (5) *Evidence-Based Design and Outcomes.* A proposal may focus on an individual Key Feature or on the interactions and connections among them. A proposal should clearly demonstrate how the project would contribute to the MSP goals and how its findings, activities, or tools would support the MSP C&T projects or the overall MSP program. MSP RETA projects are expected to take advantage of the range and diversity of approaches, strategies, and contexts represented by MSP C&T projects.

MSP Key Features:

***Teacher Quantity, Quality, and Diversity*:** MSP C&T projects are designed to ensure that all students are taught by highly qualified mathematics and science teachers. To achieve this goal, projects engage in innovative recruitment, induction, and retention strategies. The projects also provide for pre- and in-service professional development opportunities designed to enhance both the mathematics/science content knowledge and associated pedagogical content knowledge of K-12 teachers.

***Challenging Courses and Curricula*:** MSP C&T projects are designed to ensure that K-12 students are prepared for, have access to, and succeed in challenging mathematics and science curricula and advanced courses. Students will develop the depth and breadth of content knowledge, skills, and ways of thinking that allow them to pursue further studies in science, technology, engineering, and mathematics (STEM) disciplines and to apply the acquired knowledge throughout life.

Institutional Change and Sustainability: To promote sustainability, MSP C&T projects design and implement policies and practices to ensure coordinated institutional change at the college and university and at the K-12 levels. Higher education institutions commit to the significant engagement of mathematics, science and engineering faculty in strengthening K-12 education. K-12 partner organizations commit to utilizing evidence-based strategies to enhance mathematics and science teaching and learning.

***Partnership-Driven*:** MSP C&T projects are designed and implemented by partnerships that include K-12 administrators, faculty, teachers, and guidance counselors in participating K-12 schools, and STEM faculty and administrators in higher education partner organizations. These partners and other stakeholders are engaged at both the institutional and individual levels and share goals, responsibilities, and accountability for their work.

***Evidence-Based Design and Outcomes**:* The design of MSP C&T projects is informed by the current literature on learning and teaching, and projects are expected to make evidence-based contributions to that knowledge base. MSP C&T projects will collect and analyze data about teachers and student achievement in science and mathematics, disaggregated by race, ethnicity, socio-economic status, gender, and disability, utilizing these data as a baseline for project activities. Project activities are designed to reach annual benchmarks that improve the baseline and lead to long-term measurable goals. MSP C&T projects will refine their approaches as they analyze on-going data about the effectiveness of their partnerships; the engagement of mathematics, science, and engineering faculty; and the effects of new policies and procedures on student and teacher learning.

Some examples of areas of interest related to the MSP Key Features, their interactions and their connections to mathematics and science learning are:

- Longitudinal studies of the relationships among MSP professional development activities, teacher content knowledge, instructional practice, and student learning;
- Evaluation of partnerships among STEM faculty, education faculty, and K-12 administrators and teachers;
- Development of tools or instruments for classroom-level use that enable teachers to (a) assess student understanding of important mathematics and science concepts, and/or (b) determine the nature of student misconceptions;
- Comparative analyses of alternative models of mathematics, science and engineering faculty engagement in K-12 education;
- Analyses of the impact of MSP mathematics and science courses and curricula on student learning and other significant student outcomes;
- Analyses of challenging mathematics and science curricula and materials and the processes for their selection;
- Development of systems for linking assessments, assessment items, curricula, and standards in mathematics and science;
- Comparative analyses of institutional policies and procedures that support significant engagement of mathematicians, scientists, and engineers within institutions of higher education;

- Analyses of factors that enhance or hinder sustainable change in MSP partner institutions;
- Support for MSP projects in the use of evidence to design rigorous environments for improved mathematics and science teaching and learning;
- Analyses of MSP policies and practices that enhance the recruitment, induction, and retention of high quality teachers who are knowledgeable in both mathematics/science and the associated pedagogical content knowledge;
- Comparative analyses of MSP partnership models and their differential effects on student learning of science and mathematics;
- Development of assessments linking classroom practice and large-scale accountability systems;
- Development of instruments that assess teacher knowledge of (a) mathematics and science and (b) associated pedagogical content knowledge;
- Application of new statistical models and techniques for the analyses of multi-faceted databases; and
- Longitudinal studies of student achievement across a sample of MSP C&T projects.

Infrastructure and Communication Projects: In addition to the MSP RETA projects that focus on one or more of the Key Features of the MSP C&T projects, NSF anticipates the need for a small number of Infrastructure and Communication projects through which MSP C&T projects will interact with one another, have access to a range of tools and assessments and participate in other activities that support the Learning Network. NSF anticipates that these awards will be funded as cooperative agreements. Two areas of particular interest for this solicitation are:

- MSP Toolbox to disseminate research findings and provide tools that support the MSP C&T projects. The Toolbox is envisioned as an electronic venue for sharing materials such as data collection instruments, models and tools for curricula and professional development that have a proven evidentiary base, approaches to evaluation, proven approaches to enhancing the role of higher education faculty, etc.

- MSP-Electronic Community to support communication among the MSP projects and NSF. This e-Community is expected to disseminate research findings, support meetings and events, support a full range of discussion modes among MSP projects on topics of interest to MSPs and serve as a resource center to link other MSP sites.

A proposal may also combine these two areas into a single project.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program announcement/solicitation.

IV. AWARD INFORMATION

In this solicitation, NSF expects to support three types of projects:

Grants for Research, Evaluation and Technical Assistance: NSF expects that these projects will be of three - five years in duration, with requests of up to $1 million per year. If the work proposed in a project requires a longer time frame for completion or an especially intense effort, a proposal may request a funding level or time frame outside this range but such requests should be viewed as exceptions that require a carefully presented, compelling rationale.

Design Grants: Many of the interests of MSP RETA suggest multi-year, long-term, collaborative efforts that may require a design phase. The estimated amount for these projects is $250,000 for one year.

Cooperative Agreements for Infrastructure and Communication Projects: NSF expects to fund one or two projects that will support communication, dissemination and cooperation among all projects funded by the MSP program. The estimated amount for these projects is $1 million per year for five years.

Estimated program budget, number of awards, and average award size/duration are subject to the availability of funds.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(optional):*

NSF encourages letters of intent to facilitate the review process. Letters of intent should be submitted to MSP-RETA@nsf.gov no later than April 1, 2003. The subject line of the email should be **"LOI:"** followed by the last name of the Principal Investigator. The body of the e-mail should contain:

Title of Proposed Project

Type of Project (*Research, Evalutation, and Technical Assistance; Design; Infrastructure and Communication)*

Names of all senior personnel including institutional affiliation(s)

Full Proposal Instructions:

Proposals submitted in response to this program announcement/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/cgi-bin/getpub?gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

The following provides additional guidance regarding preparation of the Project Summary and Project Description portions of the proposal.

Project Summary: Provide a one-page summary that briefly describes the project vision, goals, activities and Key Features that will be addressed and the expected benefits of the work. Note that this section must address both NSB-approved merit review criteria in separate statements. Effective October 1, 2002, NSF will return without review proposals that do not explicitly address both merit review criteria in separate statements.

It is strongly recommended that the (single) Project Summary page contain relevant information in three clearly labeled sections -- *Abstract*, *Intellectual Merit Criterion,* and *Broader Impacts Criterion*. Further clarification of the merit review criteria can be found below in Section VI A.

Project Description: The project description should contain the following elements:

> ***Plan of work:*** A proposal must clearly describe the research or evaluative approach or the specific types of technical assistance being proposed
>
> ***Connection to MSP goals and Key Features:*** The project description should indicate a clear understanding of the goals of the MSP program and illustrate how the RETA project contributes to these goals. The project description should identify the Key Features the project will address and how it will contribute to the underlying knowledge base for those features and/or support the MSP C&T projects in those domains.
>
> ***Plan for Working with the MSP Comprehensive and Targeted Projects:*** The project description should discuss

how the project expects to interact with the MSP C&T projects. This section should include an estimate of the number, type, duration, and intensity of interactions with the MSP C&T projects. The proposal should clearly indicate the benefits to MSP C&T projects by virtue of their participation. NSF does not want current MSP C&T projects to be burdened with numerous requests for support or collaboration. **Therefore, a proposal should not include letters of commitment or other indications of support from these projects.** For information about the MSP C&T projects, see the MSP web page at: https://www.ehr.nsf.gov/msp/

NSF will work with the awardees under this solicitation and with the current and future MSP C&T projects to ensure appropriate interactions among all projects.

Research Base and Methodology: The project description should discuss and cite the current state of knowledge relevant to the project. This brief literature review should clearly indicate why the proposed research, evaluation or technical assistance activities were selected or designed. If the proposal builds on prior work, the project description should indicate what was learned from this work and how these lessons learned are incorporated in the project.

The project description should reflect knowledge of the relevant advances in quantitative, qualitative and mixed research methodologies and theoretical models. The project description should identify the research, evaluation, or technical assistance methods that the project will use and explain why those methods are appropriate to the issues or questions that the proposal addresses. NSF expects that the portfolio of awards will reflect a balance of quantitative and qualitative methodologies, such as case studies, quasi-experimental and controlled studies, design experiments, and surveys. A proposal must make a compelling case for its approach and for how that approach helps the MSP program build a rigorous, cumulative, reproducible, and usable body of findings. Methodologies must be matched with strategic research questions, and the logic among research question, method, analysis, inference, and evidence should be well articulated.

The MSP program recognizes that the improvement of K-12 education will involve the participation of a wide range of experts including mathematicians, scientists, engineers and education faculty and school-based personnel. To adequately address many of the issues involved in MSP RETA, a project may need an interdisciplinary team. Where a proposal has an interdisciplinary team, the project description should indicate the strengths and viewpoints that the different disciplines and participants bring to the project.

Plans for Dissemination and Data Sharing: MSP RETA projects are expected to be active participants in the MSP Learning Network. One goal of the Learning Network is to strengthen the integration of research and practice. A proposal must describe innovative plans to disseminate research findings to a wide range of audiences. Projects are expected to share approaches, preliminary findings, and ideas with other members of the MSP Learning Network and to work with NSF in developing a comprehensive plan for data sharing. In addition, a project that will collect data about MSP partnerships, their students, or their teachers must include specific plans for making those data available to other researchers for secondary analyses while protecting the privacy of respondents.

Capacity Building: The Project Description should indicate how the project contributes to the capacity of the field to study and implement large-scale educational reform. MSP RETA encourages proposals to include graduate and post-doctoral personnel. The proposals should address the work that each of these personnel will do and how it might contribute to their development in the RETA fields. MSP RETA is particularly interested in involving mathematics, science, and engineering students and post-docs in this work to build the strength and intellectual diversity of the education research and evaluation fields.

***Management Capability*:** The Project Description must clearly demonstrate that the submitting team has the capability to manage the project, organize the work, and meet deadlines. This is critically important for larger or longer-term grants.

Budget Justification: The budget justification should be clearly tied to the scope and requirements of the project. All proposals should include provision for at least two persons to participate in the MSP Learning Network Meeting in Washington, DC each year.

Proposers are reminded to identify the program announcement/solicitation number (03-541) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing

guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required in proposals submitted under this Program Solicitation.

C. Due Dates

Proposals must be submitted by the following date(s):

Letters of Intent *(optional):*

April 14, 2003

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

May 12, 2003

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: http://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. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

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. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: http://www.fastlane.nsf.gov

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 (NSB 97-72). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to

the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the Grant Proposal Guide Chapter III.A for further information). 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 he/she 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 and original 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?

NSF staff 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

In elaboration of the general NSF review criteria, reviewers will also be asked to consider the following questions as they review MSP RETA proposals (these questions are aligned with the information to be provided in the Project Description):

Connection to MSP goals and Key Features:

Does the proposal provide evidence of a clear understanding of the goals of the MSP program?

What is the potential of the proposed project for advancing a greater understanding of the contributions of the MSP Key Features to enhanced student learning in mathematics and science?

Plan for Working with the MSP Comprehensive and Targeted Projects:

Does the proposal include a clear description of the proposed interactions with the MSP Comprehensive and Targeted (C&T) projects, including a well-planned timeline?

Are the proposed number, type, and intensity of interactions with the MSP C&T sites reasonable and appropriate?

Research Base and Methodologies:

Is the proposed project clearly informed by the relevant literature and does it build, where appropriate, on previous work by the principal investigators?

Is the methodology proposed appropriate, rigorous, and based on research and development in the field?

Is the proposed methodology likely to result in valid, reliable findings that inform MSP work?

Plans for Dissemination and Data Sharing:

Are dissemination plans adequately addressed?

Are plans for sharing of information -- including plans for making data available, particularly for longitudinal studies -- described in the proposal?

Capacity Building:

Does the project have the potential to contribute to the capacity of the field for rigorous research, evaluation, and technical assistance on large-scale educational work?

***Management Capability*:**

Is a management plan well-specified, especially for a larger project?

What is the institutional capacity for managing and administering the proposed project?

Budget:

Is the budget justified in terms of the scope and complexity of the project?

Are resources included for participation in the MSP Learning Network?

Is the proposed length of the project appropriate?

Information regarding the MSP program, including the FY 03 Math and Science Partnership Program Solicitation (NSF 02-190), abstracts of MSP C&T awards, a bibliography of relevant research literature, and a list of related funding opportunities

can be found at: https://www.ehr.nsf.gov/msp/.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by 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.

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 Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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 date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

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

A. Notification of the Award

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 Division 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.A. for additional information on the review process.)

B. Award Conditions

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 (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/cgi-bin/getpub?gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is

(202) 512-1800. The GPM may be ordered through the GPO Website at http://www.gpo.gov.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. 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. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, 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.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Elizabeth VanderPutten, Program Director, Math and Science Partnership, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5147, fax: (703) 292-9046, email: evanderp@nsf.gov
- Bernice T. Anderson, Program Director, Directorate for Education & Human Resources, Division of Research, Evaluation & Communication, 855 S, telephone: (703) 292-5151, fax: (703) 292-9046, email: banderso@nsf.gov
- Janice M. Earle, Senior Program Director, Directorate for Education & Human Resources, Division of Elementary, Secondary, & Informal Education, 885 S, telephone: (703) 292-5097, fax: (703) 292-9044, email: jearle@nsf.gov
- Cheryl L. Eavey, Program Director, Directorate for Social, Behavioral & Economic Sciences, Division of Social and Economic Sciences, 995 N, telephone: (703) 292-7269, fax: (703) 292-9068, email: ceavey@nsf.gov
- James E. Hamos, Program Director, Math and Science Partnership, Directorate for Education & Human Resources, 875 S, telephone: (703) 292-4687, email: jhamos@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: (800)673-6188, email: fastlane@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF Website at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

The Division of Elementary, Secondary, and Informal Education has programs in Centers for Learning and Teaching (CLT), Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST), Instructional Materials Development (IMD), Advanced Technological Education (ATE), Informal Science Education (ISE), and Information Technology Experiences for Students and Teachers (ITEST) and Teacher Professional Continuum (TPC) . Brief descriptions and solicitations for these programs can be found at www.ehr.nsf.gov/esie.

The Division of Undergraduate Education has programs in Advanced Technological Education (ATE), Assessment of Student Achievement in Undergraduate Education (ASA); Course Curriculum and Laboratory Improvement (CCLI); National Science, Mathematics, Engineering and Technology Education Digital Library (NSDL); and Noyce Scholarship. Brief descriptions and solicitations for these programs can be found at www.ehr.nsf.gov/due.

The Division of Research, Evaluation and Communications has programs in Research on Learning and Education (ROLE), Evaluative Research and Evaluation Capacity Building (EREC), and the Interagency Education Research Initiative (IERI). Brief descriptions and solicitations for these programs can be found at www.ehr.nsf.gov/rec.

The Division of Graduate Education has the program for the NSF Graduate Teaching Fellows in K-12 Education (GK-12). A brief description and the solicitation for this program can be found at www.ehr.nsf.gov/dge

The Directorate for the Social, Behavioral and Economic Sciences has several programs related to this solicitation. In the Division of Behavioral and Cognitive Sciences, the programs on Human Cognition and Perception (HCP), Social Psychology (SP) and Developmental and Learning Sciences (DLS) are particularly relevant. Brief descriptions and solicitations for these programs can be found at www.nsf.gov/sbe/bcs

In the Division of Social and Economic Sciences, the programs on Innovation and Organizational Change (IOC) and Methodology, Measurement and Statistics (MMS) are particularly relevant. Brief descriptions and solicitations for these programs can be found at www.nsf.gov/sbe/ses

Within the Directorate for Mathematical and Physical Sciences supports several programs that bring university and K-12 schools together including Research Experiences for Teachers (RET). A brief description of this programs can be found at www.nsf.gov/mps/activities/c_oma.htm.

The Office of Integrative Activities supports the Science and Technology Centers. Their web site contains information and resources on educational activities at www.nsf.gov/od/oia/programs/stc/cid.htm.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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: pubs@nsf.gov

  or telephone: (301) 947-2722
- **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; 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 applicant 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 needing information as part of the review process or in order to coordinate programs; 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," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). 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

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 this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.

National Science Foundation
Celebrating 50 Years

The National Science Foundation
4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: 703-292-5111, FIRS: 800-877-8339 | TDD: 703-292-5090