



National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

FREQUENTLY ASKED QUESTIONS DISCOVERY RESEARCH K-12

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A. ACRONYMS

1. What do the acronyms in the DR-K12 solicitation represent?

Funding Programs

DR-K12	Discovery Research K-12 (current)
REESE	Research and Evaluation on Education in Science and Engineering (current)
CLT	Centers for Learning and Teaching (past)
IMD	Instructional Materials Development (past)
TPC	Teacher Professional Continuum (past)

Terminology

AOR	Authorized Organizational Representative
CI	Cyberinfrastructure
STEM	Science, Technology, Engineering, and Mathematics
UDL	Universal Design for Learning

Organizations

AAAS	American Association for the Advancement of Science
ITEA	International Technology Education Association
NCTM	National Council for Teachers of Mathematics
NRC	National Research Council
NSDL	National Science Digital Library
TE-MAT	Teacher Education Materials (a database)

B. PROPOSAL SUBMISSION AND PROCESSING

2. Where can I find the guidelines for submitting proposals to NSF?

Proposals submitted to NSF must be prepared and submitted in accordance with the guidelines contained in NSF's Grant Proposal Guide (GPG). The GPG is available electronically on the NSF Website at www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG can be obtained from the NSF Publications Clearinghouse. Call (703) 292-7827 or e-mail pubs@nsf.gov.

Frequently Asked Questions (FAQs) on proposal preparation and award administration are available at www.nsf.gov/pubs/gpg/faqs.pdf.

3. Should I submit my proposal to FastLane or Grants.gov?

Although proposals can be submitted via either system, FastLane is designed solely for NSF and offers support for program requirements. Letters of Intent and preliminary proposals, when required, must be submitted via the FastLane system.

NSF's FastLane system uses Internet/Web technology to facilitate the way NSF does business with research, education, and related communities. FastLane is available for proposal preparation; submission and status checking; project reporting; and post-award administrative activities. All FastLane functions are accessed with a Web browser.

Information and FAQs about FastLane are available at www.fastlane.nsf.gov. Questions concerning the use of FastLane should be directed to FastLane's User Support Desk at (800) 673-6188 or (703) 292-8142 or by sending an e-mail to FastLane@nsf.gov.

Proposals submitted 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/bfa/dias/policy/docs/grantsgovguide.pdf>). 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 pubs@nsf.gov.

4. Are Letters of Intent required for all components of DR-K12?

No. Letters of Intent are required for Exploratory Projects only in all three proposal components (Applied Research, Development of Resources and Tools, and Capacity Building).

If you plan to submit a proposal for a full-scale project for any of the three DR-K12 components, instead of a Letter of Intent, you are *required* to submit a Preliminary Proposal. "Required" means that if you do not submit a Preliminary Proposal on or before the November 15th due date, you may not submit a full proposal later.

5. How do I submit a Letter of Intent?

Submit your Letter of Intent via FastLane. On the FastLane Home Page, click on *FastLane Help* in the upper right corner, then *Proposal Functions* from the list of links on the left side. On the screen that follows, click on *Create* and then *Submit Letters of Intent*. Follow the instructions provided.

6. What information should I include in my Letter of Intent?

Your Letter of Intent should contain a brief narrative that describes the project and provides the following information: (1) a project title; (2) clear identification of the proposal component (i.e., Applied Research, Development of Resources and Tools, or Capacity Building) and the proposal category within that component; (3) a list of proposed Principal Investigators and Co-Principal Investigators, including organizational affiliations and departments; (4) partnering institutions; (5) STEM disciplines represented; and (6) grade band, if applicable.

7. May I submit more than one preliminary or full proposal if they are in different proposal components?

Yes. The solicitation does not limit the number or types of preliminary proposals that a Principal Investigator can submit. For example, a PI can submit a proposal to Applied Research (Component A) and to Development of Resources and Tools (Component B).

8. May I submit a full proposal to more than one category within a component? For example, may I submit a proposal to do an evaluative study of NSF-funded resources and tools and a different proposal to study a student learning progression in the Applied Research component?

Yes. The solicitation does not limit the types or number of proposals that a Principal Investigator can submit.

9. If I decide after November 1, 2006 (the deadline for submitting Letters of Intent for Exploratory projects) that I want to submit a proposal for an exploratory project, may I do so?

No, the Letter of Intent for Exploratory projects is required. If a Full proposal for an Exploratory project is submitted, it will be returned without review.

10. Although Preliminary Proposals are not required for Exploratory Projects, can I submit one?

DR-K12 is not prepared to handle Preliminary Proposals for Exploratory Projects. After submitting your Letter of Intent, you can contact a DR-K12 Program Director to discuss your idea for an Exploratory Project.

11. I want to conduct professional development activities for STEM teachers. To which component should I submit my proposal?

The DR-K12 program *does not* support professional development initiatives, that is, fund projects for which the main activity is implementation of a workshop or a course for teachers. However, a project may conduct professional development activities in the process of conducting research or developing materials. DR-K12 supports research studies about STEM teachers' professional development (Component A: Applied Research), the development of resources and tools for use in STEM teacher education and professional development (Component B: Development of

Resources and Tools), and the development of STEM educators at the doctoral level (Component C: Capacity Building). The main products of Component A projects are research findings organized into papers to be published in peer-reviewed journals. The main products of Component B projects are instructional or assessment materials. The main products of Component C projects are the development of system models and research personnel for STEM educational innovations.

12. My project includes research and professional development. To which component should I submit my proposal?

If the main product of your project is a paper in a research and/or practitioner journal that adds to the theoretical knowledge base, synthesizes knowledge, or advances understanding of methods, submit the proposal to Component A: Applied Research. If the main product of your project is material that will be used in the professional development of teachers, submit the proposal to Component B: Development of Tools and Resources. All Component B projects are expected to include research into why the materials work, with whom the materials work, and in what contexts the materials work.

13. My project includes research and the development of instructional materials for students. To which component should I submit my proposal?

If the major purpose of your project is to add to the theoretical knowledge base, synthesize the knowledge base, or advance understanding of various methods, submit the proposal to Component A: Applied Research. If the major product of your project is to develop the instructional materials to be used with students in classrooms submit the proposal to Component B: Development of Tools and Resources. All projects in Component B should be informed by research and are expected to include research into why the materials work, with whom the materials work, and in what contexts the materials work.

14. How should I determine whether to submit my proposal to REESE or DR-K12?

While both programs support research in various topics at the K-12 level, there are a number of ways in which they are different. First, in general, the REESE program emphasizes more fundamental contributions to the knowledge base in STEM learning and education (including the development of theory and method), while DR-K12 is aimed at producing findings of more immediate use to educators, schools and districts. Second, in addition to K-12 education, REESE supports research on pre-K, undergraduate education, graduate education, adult education, and informal learning. If you are unsure, we recommend you seek advice from a Program Director and submit your proposal to whichever program you feel fits your research goals best. NSF reserves the right to review your proposal under the program it feels provides the best fit.

15. Do conference proposals require a Letter of Intent or preliminary proposal?

No, conference proposals do *not* require a Letter of Intent or a preliminary proposal.

16. Once I submit a proposal, how long will it be before I hear from NSF about a funding decision?

The goal of NSF is to notify proposers of a funding decision within 6 months of the proposal submission deadline.

17. How many awards will DR-K12 fund?

DR-K12 estimates the total awards to be 48 standard or continuing grants—12 Conference grants, 21 Exploratory grants, and 15 Full-Scale grants.

C. DESCRIPTION OF THE PROGRAM

18. Must I address one or more of the Grand Challenges in my proposal?

Proposals are *not* required to address Grand Challenges. DR-K12 does not expect the Grand Challenges to be reflected in every proposal or award, but they are a priority for NSF. Ultimately, proposals that review best are those most likely to be awarded, so the peer review panels will help weigh the importance of the Grand Challenges vis-à-vis the intellectual merit and broader impacts addressed in DR-K12's Guidelines. Principal Investigators and institutions should focus their proposed work on the needs of STEM education in light of their own capacity and DR-K12's goals. There are no quotas for the number of awards that will address the Grand Challenges.

19. Because DR-K12 is a K-12 program, must I address all K-12 grades in my proposal?

No. Projects should address grade levels or grade bands that are appropriate for the goals and activities of the project.

20. What are exploratory projects?

Exploratory projects address exploratory questions that can be investigated in a short amount of time (no more than 3 years) with a modest budget (\$300,000). The purpose is to allow researchers to investigate the efficacy of new research questions or new approaches before requesting full funding. NSF hopes these explorations will produce empirical evidence that calls for further research or development. These are not planning grants. Exploratory projects are complete studies, but are typically smaller in scale and duration, as they test the reasonableness of ideas and feasibility of methods.

21. Can STEM Education Research Scholars projects provide stipends for students who were enrolled as doctoral candidates prior to the NSF award?

The goal of the STEM Education Research Scholars component is to increase the number and diversity of students receiving doctoral degrees in STEM education and entering STEM education careers. It is therefore expected that the majority of students supported by this program will be new students recruited to work as a cohort on a common research agenda in critical and/or emerging areas of STEM education. In some cases, it may be advantageous to award a stipend to previously enrolled degree candidates who are in the early stages of a doctoral research project relevant to the institution's Scholars program; however, the proposal should provide convincing evidence that the program will prioritize recruitment of a new group of talented individuals interested in STEM education careers. When appropriate, education and training activities developed for the STEM Education Research Scholars may be made available to other students in STEM education and STEM so as to enhance the career development of all students.

22. Can you explain how the maximum award to support five graduate students was calculated?

Most of this award goes into participant support. You can ask for up to \$40,500 per student for 5 students per year for 5 years ($\$40,500 \times 5 \times 5 = \$1,012,500$ maximum for participant support). In addition, an institution or consortium can request up to \$300,000 over the life of the project to support the program (for example, to develop a mentoring program, for program evaluation, or to cover costs of outside speakers). The \$300,000 must be inclusive of indirect costs. Thus, the maximum award in this category is \$1,312,500.

23. May graduate students, as individuals, apply for Research Scholar funding?

The Research Scholars component of DR-K12 does not fund stand-alone graduate research projects. If, however, a graduate-degree granting institution applies for, and receives, research scholars funding with a research theme that is compatible with a student's interest, the student can apply to the institution and ask to become one of the (up to five) doctoral students supported by the award. Institutions will not receive notification of awards until September 2007 or the summer before.

24. What are different dissemination activities and venues?

Examples of dissemination activities include STEM education researchers sharing findings with other communities like policy makers, teachers, and community based advocates. Findings can also be disseminated via peer-reviewed and practitioner **journals, websites** or through technology-based applications like **web conferences** or **pod casting**. Principal Investigators can partner with **museums, nature centers, science centers**, and similar institutions to display research findings or share materials and resources developed with NSF funding. PIs can give STEM education presentations to the broader community (for example, at **libraries** or on **radio shows**). Research methodologies and findings can be published in diverse media (for example, **non-technical literature** and **press kits**) to reach broad audiences. PIs can also present research and education findings in **formats useful to policy-makers**, members of **Congress, industry**, and other audiences, participate in **conferences** and **workshops**, and **integrate research with education**.

D. MISCELLANEOUS ISSUES

25. Are Appendices allowed in preliminary or full proposals?

Appendices may not be included in preliminary or full proposals. For preliminary proposals, no additional documentation beyond the required preliminary proposal elements is permitted. For full proposals, supplemental documentation such as letters indicating support for the proposed project can be submitted. However, reviewers are not required to read the supporting documents and you cannot assume that they will read it. Therefore, make sure the project description provides sufficient information about the project to enable reviewers to make informed judgments.

26. Is IRB approval required to submit a proposal?

Projects involving research with human subjects must ensure that subjects are protected from research risks in conformance with the relevant federal policy known as the Common Rule (*Federal Policy for the Protection of Human Subjects*, 45 CFR 690). All projects involving human subjects must either (1) have approval from the organization's Institutional Review Board (IRB) before issuance of an NSF award or, (2) must affirm that the IRB or an appropriate knowledgeable authority previously designated by the organization (not the Principal Investigator) has declared the research exempt from IRB review, in accordance with the applicable subsection, as established in section 101(b) of the Common Rule. The box for "Human Subjects" must be checked on the Cover Sheet with the IRB approval date (if available) or exemption subsection from the Common Rule identified in the space provided. If IRB approval has not been obtained prior to submission, the proposer should indicate "Pending" in the space provided for the approval date. Advice is available at <http://www.nsf.gov/bfa/dias/policy/guidance.jsp#human>.

27. Are project teams required to include scholars from each and every field mentioned under the Personnel sub-heading in the solicitation (that is, practicing scientists, mathematicians, and engineers; cognitive scientists; STEM educators and classroom teachers)?

No. Project teams need to include professionals whose expertise is relevant to the content and grade-band. For example, a project team that is developing algebra materials for middle school should include *at least* one math educator, one math/science teacher, one cognitive scientist who works with 12-14 year old students and one mathematician who has algebra expertise.