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STEM LEARNING AND RESEARCH CENTER

National Science Foundation ITEST Program 2017 Solicitation

Wednesday, June 28

1:30-2:30 PM ET

This material is based upon work supported by the National Science Foundation under Grant No. DRL 1614697. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

EDC Learning transforms lives.

Who We Are:

- STEM Learning & Research Center (STELAR)
- Resource Center for the Innovative Technology Experiences for Students and Teachers (ITEST) Program
- Located at Education Development Center in Waltham, MA
- Supporting the ITEST program and its grantees since 2003
- Available to assist those considering submitting an ITEST proposal

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What We Do

- Facilitate projects' success through **technical support** with a focus on synthesis of findings
- Inform and influence the field of STEM stakeholders by **disseminating** project findings nationally
- Deepen the impact and reach of the ITEST program by **broadening participation** in the ITEST portfolio

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Some of our activities:

- **Webinars:** Effective Dissemination, Designing Research for ITEST Projects, Mentoring Models
- **Monthly Newsletter:** Information to stay updated on all things STEM and ITEST
- **Project Specialists:** A STELAR staffer who works directly with each project to provide resources and make connections
- **Regional and Thematic Meetings:** A way for current projects to network with each other
- **Management Information System (MIS):** Annual collection of project information about what projects do, who they work with, what they have achieved

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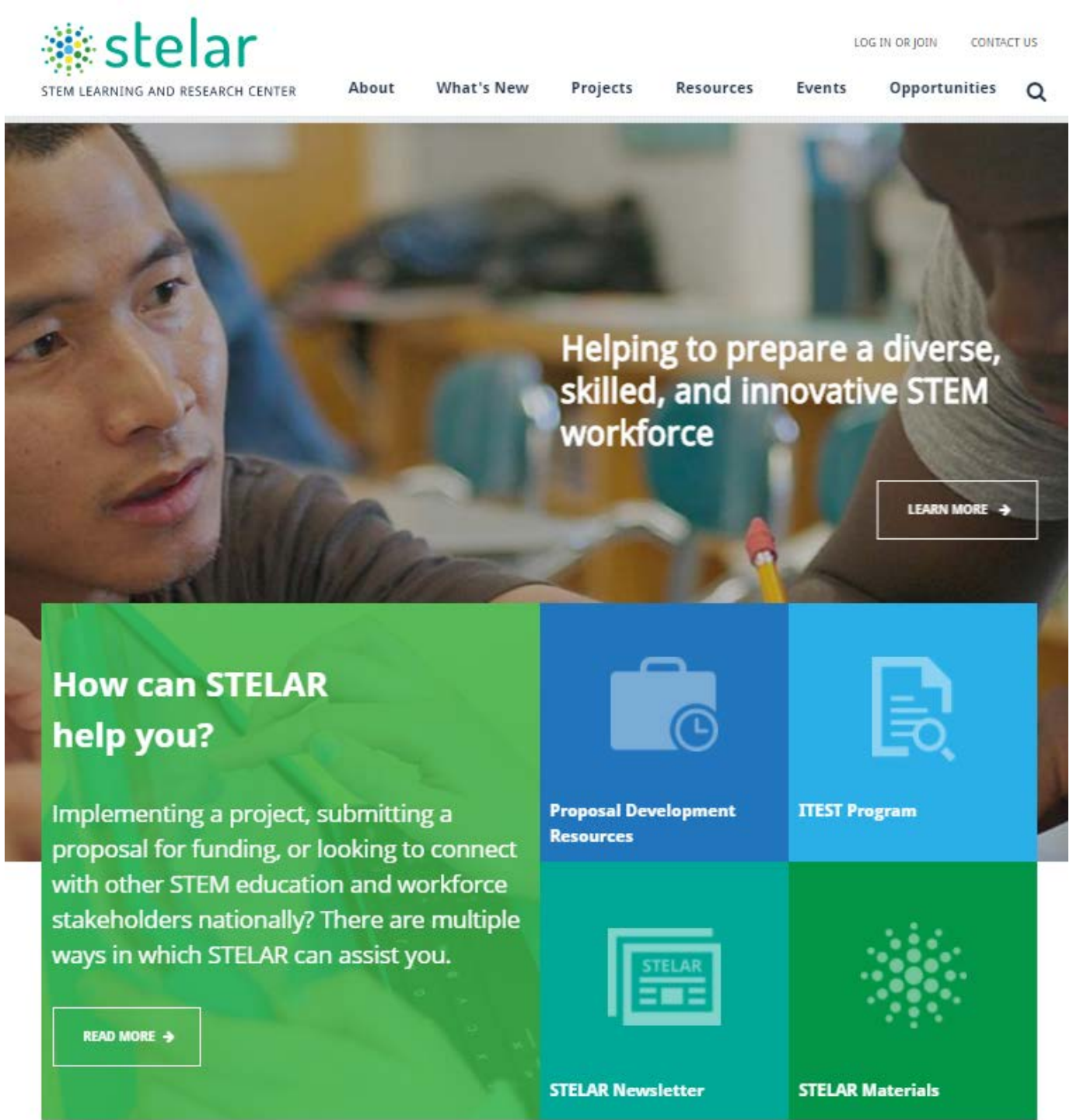

Find Resources on the STELAR Website!

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ITEST Proposal Development Resources

- + GET TO KNOW ITEST
- + PREPARE YOUR PROPOSAL FOR SUBMISSION
- + DEVELOP A ROBUST RESEARCH DESIGN
- + CREATE AN EFFECTIVE EVALUATION STRATEGY
- + CONNECT WITH PARTNERS
- + REACH UNDERSERVED POPULATIONS
- + DEVELOP THE WORKFORCE OF THE FUTURE

http://stelar.edc.org/proposal-development

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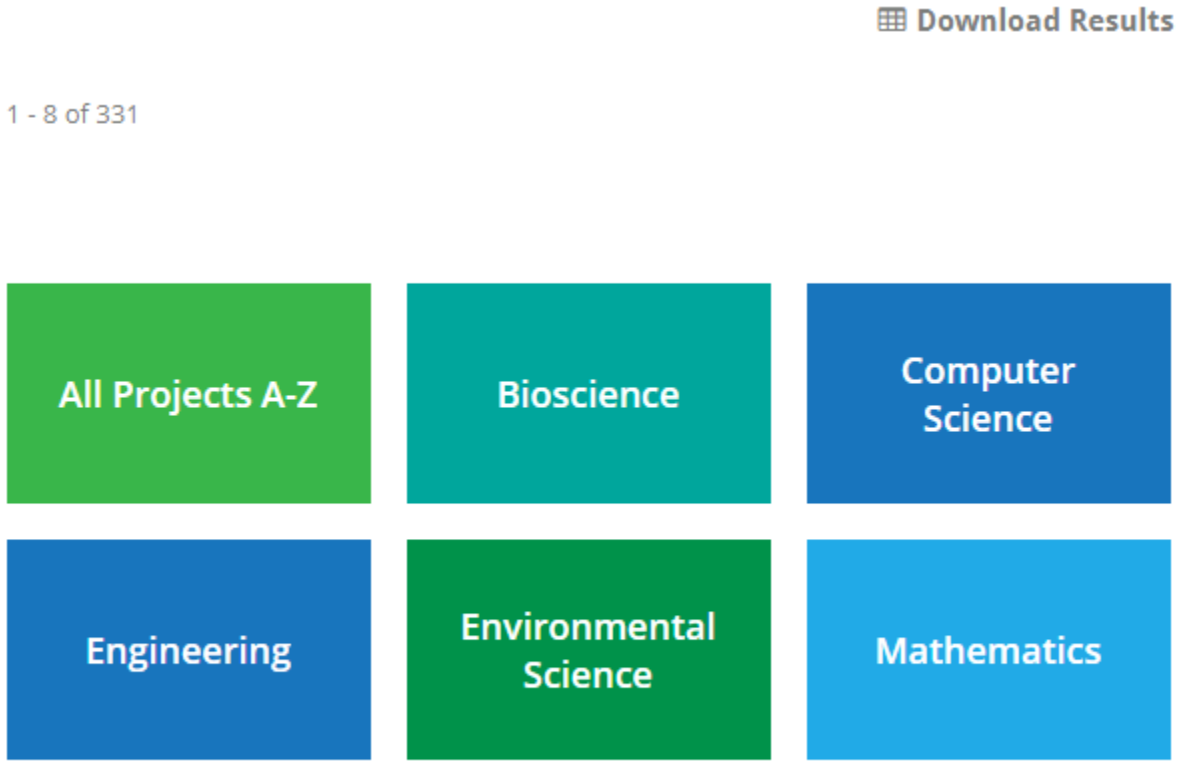
Explore ITEST Project Profiles



http://stelar.edc.org/projects

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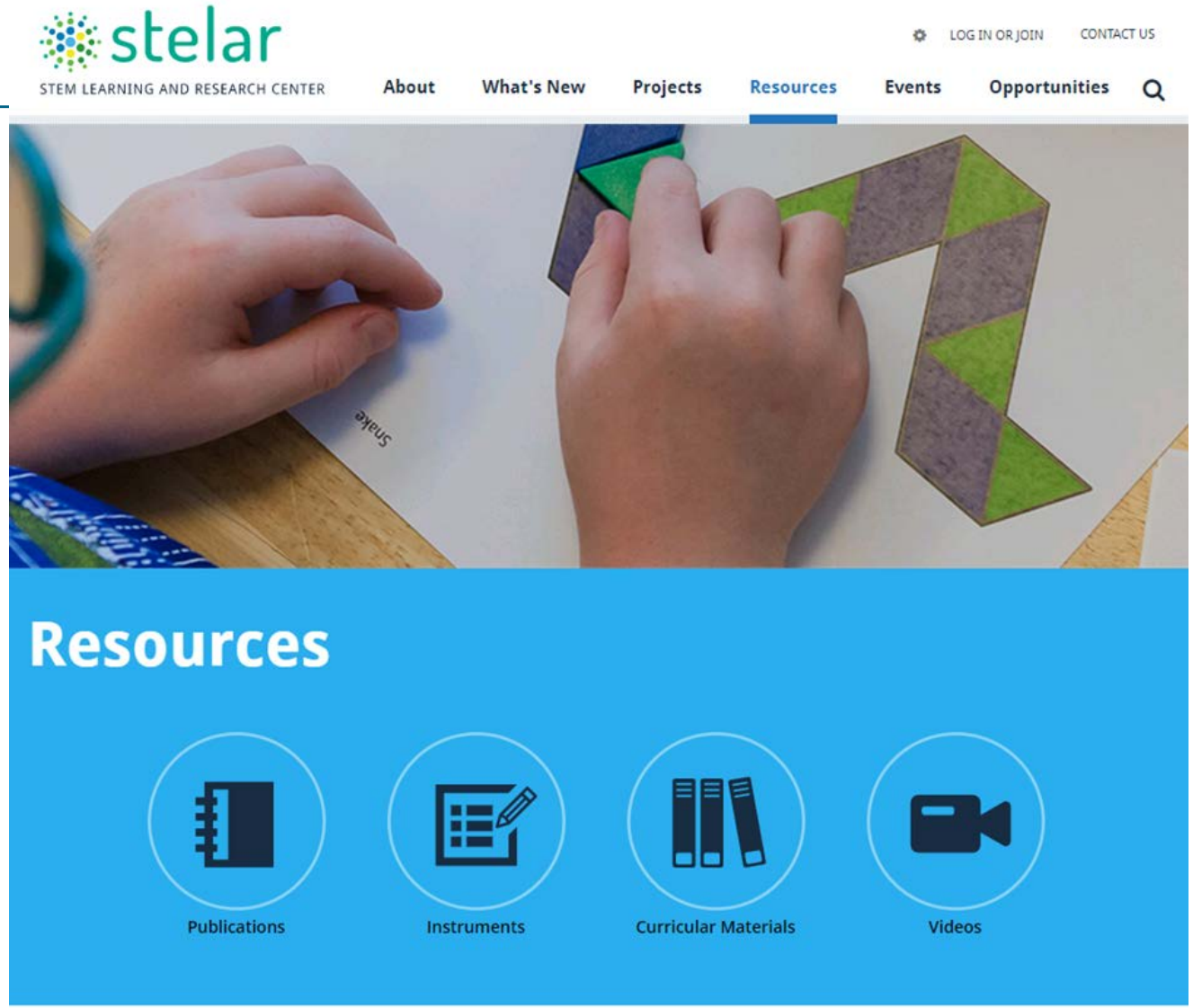
Resource Library

- ITEST publications
- Research and evaluation instruments
- Curricular materials
- Project videos

http://stelar.edc.org/resources



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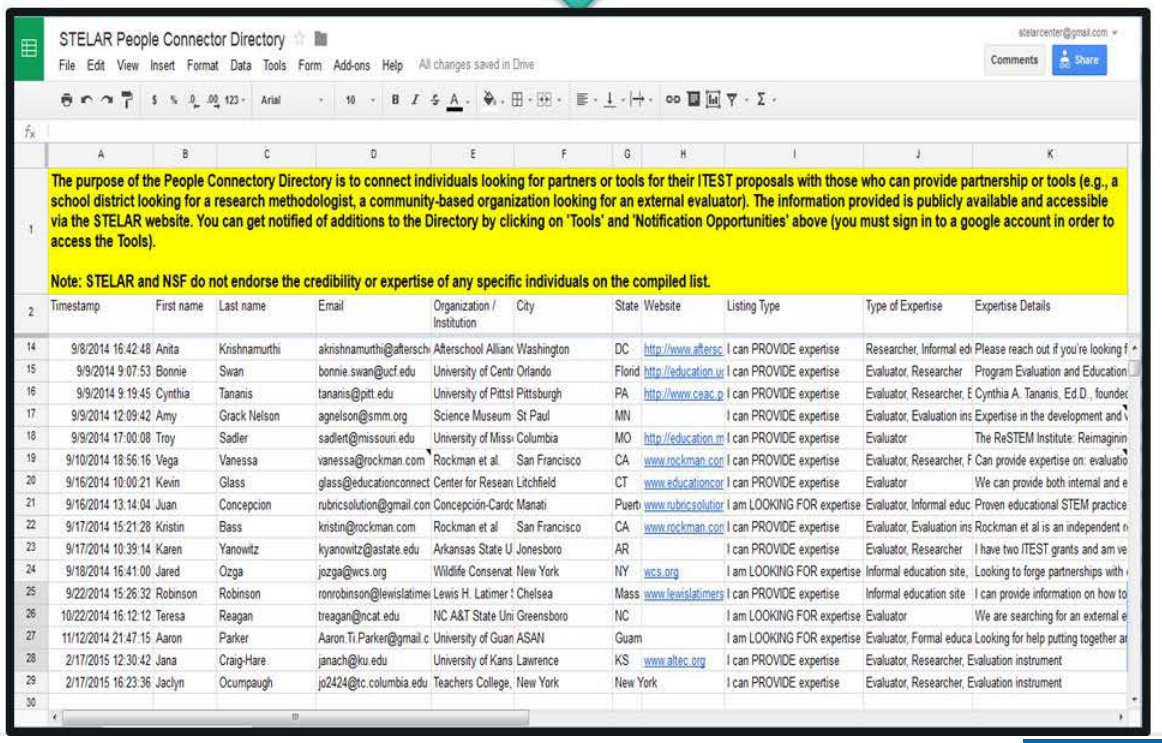
Connect with others via the People Connector

http://stelar.edc.org/opportunities/people-connector-directory-itest-proposals

People Connector Form

People Connector Directory



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Stay in Touch!

Contact us: stelar@edc.org

Facebook: https://www.facebook.com/stelarctr

Twitter: https://twitter.com/STELAR_CTR

LinkedIn: https://www.linkedin.com/groups/STELAR-Center

Find resources: http://stelar.edc.org/resources

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Thank you!

Please be sure to take the webinar evaluation - your feedback is very important to us!

https://edc.co1.qualtrics.com/jfe/form/SV_0V3UOAaV4q0FQMJ

The recording and presentation slides will be posted to the event page:

http://stelar.edc.org/events/stelar-webinar-nsf-2017-itest-program-solicitation

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Innovative Technology Experiences for Students and Teachers (ITEST) Program

Division of Research on Learning in Formal and Informal Settings

Program Solicitation: NSF 17-565

Proposals Due September 5, 2017

Changes For This Solicitation

- Addition of a new funding strand to support exploratory research.
- Updates of ITEST guiding questions for research.
- Clarifications regarding what to include in the Project Description section of a proposal.

Aim of the ITEST Program

Ensure a high-quality STEM workforce by supporting projects that:

- Increase student awareness of career opportunities in STEM and related fields.
- Motivate students to pursue appropriate educational pathways to STEM-related careers.
- Provide technology-rich experiences that develop disciplinary knowledge, practices, and non-cognitive skills needed in STEM fields.

STEM-Related Workforce Fields

- Traditional STEM Disciplines
- Information and Communications Technology (ICT)
- Computing, Computer Sciences, Data Analytics, and related fields.
- Professionals at all levels, including technicians, technologists, scientists, engineers, computer scientists, and mathematicians.

ITEST Projects...

- Must directly engage students.
- Must be grounded in relevant research.
- Must focus on workforce advancement for youth or school-to-work transitions.
- Must conduct research on strategies, factors, conditions, or learning environments related to STEM learning pathways and STEM-focused career preparations and mentorships.
- Must align with one or more of the guiding questions presented in the solicitation.

ITEST is particularly interested in:

- Broadening participation of students from groups underrepresented in STEM-related education and career domains.
- Projects that examine various forms of mentorship or the effectiveness of adult volunteers with relevant disciplinary expertise.
- Projects that improve students' critical thinking skills or non-cognitive skills that transfer across disciplines and into career settings.
- Projects that directly engage students with business and industry through partnerships.

"Encouraged" are Projects that…

- Bring together researchers in STEM education, STEM disciplines, career development, psychology, sociology, anthropology, and other fields related to the focus of the proposed project.
- Engage students in use of cutting-edge technological tools, computer sciences, or innovative applications of technology for work-based or problem-based learning.

Three Types of Projects Supported

Exploratory project with funding up to $400K for projects lasting up to 2 years.

Strategies projects with funding up to $1.2M for projects lasting up to 3 years.

SPrEaD (**S**uccessful **Pr**oject **E**xpansion **a**nd **D**issemination) projects with funding up to $2M for projects lasting 3-5 years.

Projects must align with one or more of the guiding questions listed in the solicitation.

- Student experiences with emerging technologies.
- Motivation and preparedness to pursue STEM careers.
- Instructional and curricular innovations.
- Partnerships with business and industry.
- Partnerships with communities.
- Partnerships with school policy leaders.
- Partnerships with career technical education.

Questions?

All proposals should…

- Include a theoretical framework grounded in existing theory and evidence.
- Describe the intervention/learning environment
- Describe the questions, instruments, methods, and analyses associated with the planned research.
- Describe how the project will collect and interpret evidence that the project was implemented as planned and goals achieved [project evaluation].

Exploratory projects…

- Advance theory or examine associations among malleable factors that influence learning, moderating conditions, and educational outcomes.
- May examine factors associated with new innovations, or modifications of existing practices.

Strategies projects…

- Address the initial design, development, and implementation of innovative, technology-related interventions.
- Engage students with the skills, knowledge, and practices associated with STEM occupations.
- Can include pilot testing to determine if new strategies lead to desired outcomes.
- May expand and extend our notions of learning environments and where learning can take place.

Project Expansion and Dissemination (SPrEaD) Projects

- Support the further examination and broader implementation of interventions that have demonstrated evidence of impact.
- Document factors that may enhance, moderate, or constrain the effects of strategies designed to enhance student knowledge or disposition toward STEM-related education pathways or careers.

SPrEaD proposals must…

- Describe the innovation and the contexts and conditions for broadening and scaling.
- Present evidence for the feasibility of impacts.
- Explain how the proposed project builds on previous implementations [Whether or not ITEST].
- Identify anticipated contributions to knowledge.
- Present a study design capable of generating robust evidence of the strategy's potential.
- Include plans to document fidelity of implementation.
- Involve a partner not previously involved.

Additional Solicitation Specific Review Criteria

In addition to considering the two general Merit Review Criteria, reviewers will also be asked to consider the following three questions relating to broadening participation when reviewing Exploratory, Strategies and SPrEaD proposals:

- Does the proposed project include explicit and adequate strategies for recruiting and selecting participants from a population or populations currently underrepresented in STEM professions, careers, or education pathways?
- Does the proposal identify the specific needs of the underrepresented groups to be served, and does it include specific plans or strategies for addressing or accommodating the particular needs of participants from those underrepresented groups?
- Are the planned technology experiences and learning activities of the proposed project developmentally and age appropriate?

Resources for Proposal Preparation

- ITEST Program Webpage: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5467&org=DRL&from=home
- ITEST Solicitation: https://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=5467&ods_key=nsf17565
- STEM Learning and Resource Center (STELAR): http://stelar.edc.org
- Proposal & Award Policies & Procedures Guide (PAPPG): https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf17001

Common Guidelines for Education Research and Development

- Potential PIs and grant writers are encouraged to use the information in the *Common Guidelines for Educational Research and Development* and the set of NSF FAQs regarding them to help in the preparation of proposals
- The section on “Foundational, Early Stage or Exploratory, and Design and Development Studies” is most relevant to this solicitation.

What are the *Common Guidelines*?

- NSF 13-126 - Joint effort between NSF and the Institute for Education Sciences at the U.S. Department of Education

http://www.nsf.gov/pubs/2013/nsf13126/nsf13126.pdf

- NSF 13-127 - Set of FAQs

http://www.nsf.gov/pubs/2013/nsf13127/nsf13127.jsp

Questions?

Proposal preparation

Project Summary Suggestions

- **First Sentence**
  - Type of Proposal – Exploratory, Strategies or SPrEaD
- **Second Sentence**
  - STEM or STEM-related areas of emphasis
  - Grade or age level(s) addressed
- **The strategy to be designed, implemented, and evaluated.**
- **Intellectual Merit and Broader Impacts**
  - Must include separate statements on each of these two NSB criteria.

Note: The Project Summary is used to group proposals, so should be "descriptive" rather than "persuasive".

Project Description Should Include…

- Project overview & succinct rationale
- Project goals and objectives
- Summary of effectiveness and impact of prior NSF support
- Explanation of principles or theoretical framework that guided the project design, informed by the literature
- Detailed work plan with a timeline
- Research plan
- Anticipated results
- Independent project evaluation process
- Dissemination plan
- Qualifications of key personnel who will be coordinating the project

Things to Consider Relating to Goals and Objectives

- Why is this project important?
- How will the project attract students or prepare them for the STEM workforce?
- How will it advance knowledge?
- What are the anticipated outcomes and/or products of this project?
- How might these products or findings be useful on a broader scale?

What Have You and Others Done? What is the context?

- Describe the theoretical and research basis on which the proposal is based.
- Discuss how the proposal is innovative and different from similar research and development projects.
- If you have been funded by NSF, provide evidence about the **effectiveness** and **impacts** of that work (Intellectual Merit & Broader Impacts).

How Are You Going To Do It?

- State clear research questions or hypotheses that the project will test.
- Describe the plan for developing, adapting or implementing the proposed innovative strategy.
- Describe the research methods, including data analysis plans, sampling plan, and assessments.
- **Briefly** describe the work plan and timeline.

Who Will do The Work?

- Briefly describe the expertise of the persons included on the proposal and why they are needed:
  - Education researchers and evaluators
  - Teachers
  - STEM-related content experts
- Upload two page bios for all senior personnel

Independent Project Evaluation

A proposal must describe appropriate project-specific independent review and feedback processes.

- The review might include an external review panel or advisory board or a third-party evaluator.
- The review must independent and rigorous
- The proposal must
  - Describe the expertise of the external reviewer(s);
  - Explain how that expertise relates to the goals and objectives of the proposal;
  - specify how the PI will report and use results of the project's external, critical review process.
- There can be different groups providing formative and summative evaluation

How Will Others Learn About The Project?

- Plan and describe specific strategies for **dissemination** of products or findings to researchers, policy makers, practitioners, and other relevant constituency groups.
- Requirement to provide project data as requested by the STEM Learning and Research (STELAR) Center.

Supplementary Documents

- Letters of collaboration (*commitment*, not *support*) from project partners*
- Data Management Plan
- Postdoctoral Mentoring Plan
- **NO OTHER DOCUMENTS**

*be careful not to include attachments to the letters

Budget

- **Should be consistent with level of work** – you do not have to request the maximum!
- **Two months salary:** No more than two months of salary for senior personnel with **academic** positions on all NSF grants ***unless*** justified.
- **Indirect cost rates:** Set by the institution and auditors and is non-negotiable.
- **Direct costs**: Not allowed for secretary or services provided through indirect costs.
- **No cost sharing**
- Limited equipment; no undergraduate tuition

Common reasons for proposals to be rated non-competitive

Importance

- Proposed problem not nationally important
- Weak, vague, or no connection to STEM content
- Relevant literatures not cited

Methods

- Inadequate or inappropriate research design
- Vague or inappropriate data collection & analyses
- Too much data being collected
- Appropriate expertise not represented
- Cost at small scale prohibitive when scaled up

Some Things POs Suggest You Avoid

- Ignoring requirements stated in the solicitation or the *Grand Proposal Guide*
- The “Trust Me” approach. Provide citations or evidence for critical assertions made.
- The “Oversell” of yourself or your project; take a neutral tone and let the evidence speak.
- General, vague, or rambling narrative without precision and details.
- Overemphasis of rationale for the project while neglecting methodology and details of what will actually be implemented.
- **Note:** URL’s are no longer allowed in Project Description

Reasons for Return Without Review

- Violation of formatting rules of the *PAPPG* (e.g. font, page length etc.).
- Failure to address specifically intellectual merit **and** broader impacts in the *Project Summary* and *Project Description.*
- Unauthorized documents/data in the appendix or supplementary document section.
- No *Post-doctoral Mentoring Plan* if post-doctoral researchers are included on budget.
- No *Data Management Plan.*

Where to Submit

NSF's FastLane:

https://www.fastlane.nsf.gov/index.jsp

- Collaborative proposals must be submitted through FastLane.
- Fastlane will check for required sections of proposals. **OR**

Grants.gov:

http://www.grants.gov (Note: submit 2-3 days in advance of deadline since this site may take 1-2 days to inform you of errors requiring resubmission, thus making your proposal late.)

Review Criteria

All proposals are reviewed under two criteria: Intellectual Merit and Broader Impact.

1. What is the potential for the proposed activity to:
   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities.

For Further Information

- Call **(703) 292-8628**
- Email: **DRLITEST@nsf.gov**
- Contact an ITEST Program Director

Note: If you wish to discuss your proposed project with a Program Officer prior to submission, it is helpful to submit a brief summary of your project (a page or less) and schedule a follow-up phone call.