

# AAAS NATIONAL STEM VOLUNTEER PROGRAM

## Introduction

AAAS is pleased to announce the pilot stage of an exciting new initiative designed to give AAAS members the opportunity to join with non-profit organizations in their communities to enhance STEM education for local K-12 students. Funded by a generous personal gift from a Lifetime member and Fellow, the **AAAS National STEM Volunteer Program** (NSVP) will award five seed grants of up to \$15,000 each to develop and implement programs that would partner STEM professionals (scientists, engineers, mathematicians, computer scientists, and so on) with K-12 educators to:

1. support teachers in providing quality STEM instruction,
2. help teachers to make the connections between the concepts they are teaching, the practices related to the concepts and the relevant education standards,
3. help students develop critical thinking skills, and
4. spark students' interest in STEM by making it relevant and connected to careers.

With this pilot effort, we seek to leverage AAAS's diverse membership to bring STEM professionals from across a wide range of disciplines and all career stages into classrooms across the U.S. The volunteer programs will help us to realize AAAS's larger vision for a national network of STEM volunteers who can provide assistance to school districts and informal education groups in delivering appropriate STEM content and helping students understand how STEM is practiced. Through this program, we want to see that the proposed model is portable, that local support can be garnered, and that evaluative measures show positive impact on volunteers, teachers, and students (and their families).

In addition to the seed grants, AAAS will provide online resources for developing, implementing, and sustaining the volunteer effort as well as in-person support through an orientation, site visits, and/or phone calls to the successful applicants during the development, implementation, and evaluation of their STEM Volunteer Programs.

## Why a National STEM Volunteer Program?

Recent national reports related to the improvement of K-12 science education recommend a number of actions, stressing improvements in curricula and development of teachers. An additional approach recommended by the President's Council of Advisors on Science and Technology (PCAST) in [\*Prepare and Inspire: K-12 Education in Science, Technology, Engineering and Math \(STEM\) for America's Future\*](#) is that "...all

middle and high schools should have a partner in a STEM field to help students understand how many discoveries remain to be made and the role young people can play in solving important scientific problems.... In this way, the STEM professional can help schools and school systems excite and motivate students to learn science and mathematics and to pursue careers in STEM fields." AAAS recognizes the potential it has through its members to act on this recommendation.

STEM professionals can provide valuable support to teachers and school systems as they implement the new Common Core State Standards (CCSS) ([www.corestandards.org](http://www.corestandards.org)) for Math and for Literacy in Science and Technical Subjects and the Next Generation Science Standards (NGSS) ([www.nextgenscience.org](http://www.nextgenscience.org)), released in April 2013. The NGSS development team worked with the CCSS writing team to ensure that their standards do not misalign or outpace the CCSS grade-by-grade standards. Both emphasize science practices along with core disciplinary content and crosscutting ideas. The standards focus on ensuring that students understand *how science is practiced*—rather than rote memorization of facts and figures—means that educators must significantly change the way they teach science. Unfortunately, most teachers were not taught this way, and many have never themselves “practiced science.” With little or no increase in the state or local resources available to prepare them for this new instructional paradigm, teachers will be expected to implement these new standards. Pairing educators in their classrooms with experienced STEM professionals would provide opportunities for students to reflect on and understand how science is practiced in the real world.

The AAAS NSVP is based upon and informed by AAAS’s successful Senior Scientists and Engineers (SSE) volunteer program, which has trained more than 150 retired scientists, engineers, and physicians in Montgomery County, MD, and Fairfax and Arlington Counties in VA, since its inception in 2005. We encourage you to read about the AAAS Senior Scientists & Engineers Program on [www.seniorscientist.org](http://www.seniorscientist.org) and watch the videos highlighting the experiences of K-12 teachers and their STEM partners.

We have discovered through the AAAS SSE program and similar volunteer programs around the country (see <http://www.aaas.org/programs/education/SSE/activities/othervolunteer.shtml>) that these programs provide a variety of opportunities for teachers and students:

- STEM volunteers give students and teachers the benefit of their hands-on expertise.
- STEM professionals provide busy teachers with the help that allows them to spend more time working one-on-one with students.
- Pairing educators in their classrooms with experienced scientists and engineers offers students the chance to engage in “science practices” as called for in the new Next Generation Science Standards. (See also, [http://www.aaas.org/news/releases/2012/0601sse\\_assessments.shtml](http://www.aaas.org/news/releases/2012/0601sse_assessments.shtml).)

- Teachers can receive a type of “on-the-job” professional development through their work with a STEM partner. It has been our experience that teachers often gain new comfort with STEM concepts and practices that last far beyond any program, leaving them able to deliver inquiry-based practices to students.

Volunteers can be retired STEM professionals looking for rewarding ways to contribute and share their expertise, those who are still in the workplace or even STEM graduate students or postdocs who want to become better teachers (and communicators about STEM in general). This experience can provide a pathway for those eager to give back to the community by inspiring kids to love science, mathematics, and technology.

### **Choosing a Partner**

The lessons learned from the AAAS SSE Volunteer Program and other STEM volunteer programs around the U.S. show that it is critical to work with a partner organization from the beginning. Potential partners can be school districts, universities, science museums, community-based organizations, federal labs, federally funded research and development centers, STEM professional organizations, and so on. The attributes of a partner can include: a connection to the local school district and teachers, assistance with recruiting and training, web site development, maintenance of volunteers’ database, assurance of continuity in program leadership, and assistance in sustaining the program.

Some examples of existing partnerships that place STEM volunteers in K-12 classrooms include:

- TOPS (Teaching Opportunities in Science), <http://www.topslearning.org/Welcome.html> which partners with a county office of education
- RE-SEED, <http://www.stem.neu.edu/programs/re-seed/>, in partnership with Northeastern University
- SSE (Senior Scientists & Engineers), <http://www.seniorscientists.org>, partnering with AAAS

### **Proposal Preparation and Submission Information**

AAAS invites proposals from AAAS members in partnership with non-profit organizations in their communities to support a STEM volunteer program that connects STEM professionals with K-12 teachers in classrooms. Successful proposals will demonstrate:

- An existing K-12 school connection (initiated by the AAAS member or the non-profit organization)
- A plan for recruiting volunteers and teachers

- An existing relationship between the AAAS member and non-profit partner
- A budget that covers 24 months (including at least one school year)
- A plan for sustaining the program after the award ends

AAAS will award five grants of up to \$15,000 to the partner non-profits to support the development and implementation of STEM volunteer programs. Expenses can include recruitment and training of volunteers and outreach to schools and to individual teachers. In addition, grantees could use the funds for publicity in their communities, promotional materials, training, travel/conference participation, volunteer recognition, evaluation, and administrative support. Cost sharing is not required but should be noted if provided.

**Eligibility Information:**

- Applicant(s) must be AAAS member(s) for at least two years
- Applicants must work in partnership with a non-profit organization
- Partner organizations must have some experience working with K-12 teachers and/or schools (must provide examples)
- Partners must have experience leading or organizing programs

**Proposal Preparation**

Proposals should be no more than five pages in length (does not include Cover Sheet). Please follow the outline below when preparing your proposal and include the requested attachments. We will contact you if we have questions or require additional information. You will receive an acknowledgement of your application within two weeks of its receipt.

- 1) Cover Sheet (includes abstract)
- 2) Project Description:
  - Description of Partners (Include pertinent experiences, connections to local schools)
  - Goals and Objectives
  - Project activities (Include preliminary plans for recruitment and preparation of volunteers and outreach to schools/teachers)
  - Timeline for activities that cover 24 months including at least one school year
  - Evaluation Plan
  - Plan for Sustaining (because this is a one-time grant, the applicants' commitment to, and plan for, sustaining the program over the long term will be major factors)
- 3) Project Budget (cost sharing is not required but should be noted if provided)
- 4) Organization background (mission, major activities, and credentials for carrying out project)
- 5) Appendices

- Verification of tax exempt status
- List of any other funding sources and uses
- Letters of support from key partners (up to three)
- Brief bios of key volunteer leaders and contacts

### **Proposal Review Process**

The proposals will be reviewed by a team of AAAS staff, volunteers and teachers from the AAAS SSE STEM Volunteer program as well as leaders of community-based efforts that engage children in science. You will be contacted by January 6, 2014, if we are interested in funding your proposal.

### **Proposal Submission Guidelines**

- Letter of intent is due by Monday, November 18 by mail or electronic submission.
- Proposals are due by December 20, 2013 by mail or electronic submission.
- If proposal is sent by regular mail, please include two copies.
- Any emails should include “AAAS STEM Volunteer Program” in the subject line.
- All documents and any questions should be directed to:  
Betty Calinger  
AAAS  
1200 New York Avenue, NW  
Washington, DC 20005  
[bcalinge@aaas.org](mailto:bcalinge@aaas.org)  
202.326.6629
- You will be notified of receipt of the proposal within two weeks of its arrival at AAAS.

### **References - STEM Volunteer Partnerships**

*The Power of Partnerships: A Guide from the NSF Graduate STEM Fellows in K-12 Education (GK-12) Program*, <http://www.gk12.org/2013/06/10/the-power-of-partnerships-a-guide-from-the-nsf-gk-12-program/>  
Common Core Standards: <http://www.corestandards.org/>  
Next Generation Science Standards: <http://www.nextgenscience.org/>

Next Generation Science and Engineering Standards Could Improve Learning and Scores, Experts Say, [http://www.aaas.org/news/releases/2012/0601sse\\_assessments.shtml](http://www.aaas.org/news/releases/2012/0601sse_assessments.shtml)

Retired Scientists Lend a Hand to Busy Teachers,

[http://www.aaas.org/news/releases/2013/0612\\_retired-scientists.shtml](http://www.aaas.org/news/releases/2013/0612_retired-scientists.shtml)

Guidelines for Starting a STEM Volunteer Program,

<http://www.aaas.org/programs/education/SSE/general/guidelines-new-prog.shtml>

SSE Supporting Documents,

<http://www.aaas.org/programs/education/SSE/activities/supportingdocs.shtml>

Other STEM Volunteer Programs,

<http://www.aaas.org/programs/education/SSE/activities/othervolunteer.shtml>