Afterschool Alliance
AFTERSCHOOL FOR ALL

June 15, 2012

To: Joan Ferrini-Mundy, NSF; Leland Melvin, NASA; and Michael Feder, OSTP

Dear Joan, Leland, and Michael:

As the NSTC, OSTP, CoSTEM and others continue to develop a strategic plan to govern federal investments in STEM education, know that the Afterschool Alliance is so pleased that you and your colleagues have solicited input from the Science, Technology, Engineering, and Mathematics (STEM) education community on the proposed *Design Principles for Federal STEM Education Investments* (NSF-2012-OTR-0002).

The Afterschool Alliance is the national voice of afterschool and is working to ensure that all children have access to affordable, quality afterschool[i] programs that keep children safe, inspire them to learn and help working families. We work closely with a network of 26,000 afterschool program partners around the nation as well as 40 Statewide Afterschool Networks and a variety of other stakeholders that are working to ensure children and youth have access to a variety of high-quality programs including STEM in afterschool settings.

We are delighted to note that informal education and educators are included in the Principles overall and urge you to consider informal education partners as a core part of the overall strategy to improve STEM education in our nation. The Afterschool Alliance has submitted comments as prescribed. Of course, these submissions often limit the ability of stakeholders like the Alliance to comment on what is included in fairly narrow plans, versus proffering suggestions that might broaden the scope of work. To that end, the Alliance would like to offer the following recommendations that build on our significant work in informal science education and engaging young people in the STEM subjects in out of school time. We hope that you will consider these recommendations as you and your colleagues continue to strive to give young people the varied opportunities required to meet the challenge of widening the STEM pipeline in the US.

Recommendations for including afterschool programs as partners in STEM education.

The Afterschool Alliance is pleased to see the attention given to informal science education partners in the Design Principles for Federal STEM Education Investments. We urge the CoSTEM to consider the unique attributes and potential of informal science learning settings and include it explicitly in the Design Principles as well as the resulting 5-year Strategic Plan.

1616 H Street NW, Suite 820, Washington, D.C. 20006 • 1440 Broadway, 16th Floor, New York, NY 10018
TEL: 202.347.2030 FAX: 202.347.2092 • TEL: 646.943.8660 FAX: 646.943.8664
afterschoolalliance.org

Afterschool programs are engaging children and youth in STEM learning all over the nation. The afterschool setting is well-suited to help close the opportunity gap that

many children and youth from under-served and under-represented communities face. Of the 8.4 million children in afterschool programs, ethnic minority children are more likely than others to participate.[ii] 25 percent of Asian, 24 percent of African-American, 21 percent of Hispanic and 16 percent of Native American children attend afterschool programs, compared to the overall average of 15 percent. Girls attend afterschool programs in equal numbers to boys. The afterschool setting therefore presents an opportunity to reach the populations we need to bring into the STEM pipeline through experiences that supplement and complement the school day.

Afterschool programs around the nation have enthusiastically embraced STEM learning as a component of their overall programming portfolio and are seeing success[iii]. System-level intermediaries are working to increase quality and availability of afterschool and STEM in afterschool and the 40 Mott Foundation-funded Statewide Afterschool Networks are increasingly becoming the brokers to coordinate afterschool STEM learning efforts in their states.

However, existing funding streams for STEM education target primarily the formal school day and interventions targeted at low-performing schools. While many existing funding streams do not preclude partnerships with afterschool programs and providers, they do not explicitly suggest a partnership as a key strategy for supporting STEM learning. When partnerships are struck, they often focus exclusively on improving academic performance in school and raising test scores. This leads to an under-utilization of the afterschool space and perpetuates an underestimation of the potential of this space. One of the root causes of disengagement and disinterest in STEM fields is that youth do not see it as relevant or applicable in their lives and communities, and do not often have a chance to be mentored or see role models who look like them. Afterschool programs have the flexibility to structure engaging experiences that show the application and relevance of STEM in youth's daily lives and provide an opportunity to meet professionals in these fields.

As the nation grapples with tackling education reform and increasing capacity in STEM fields, the afterschool field must be included as integral partners in the effort. We need to integrate community resources more effectively and efficiently to build systems that can reach children and youth in different ways to spark and maintain an interest in STEM fields.

Given the nation's need for an "all hands on deck" approach to tackle STEM education, we strongly support the recommendation made in the PCAST report to develop an initiative for a wide range of high-quality STEM-based afterschool programs spanning

several agencies, which is focused on creating opportunities for inspiration, engagement and education through experiences outside the classroom.

Many afterschool providers list partnerships with STEM content organizations and experts as a key need to offer more STEM programming. It is our hope that as OSTP and CoSTEM work towards coordinating federal agency investment in STEM education, you will consider a balanced portfolio of investments that includes both formal and informal education programs. We recommend that there be a set-aside within the STEM education funding streams of science agencies for investing in afterschool STEM programs and propose a pilot program that focuses on encouraging federal science agencies that invest in K-12 STEM education to expand into the afterschool setting. NASA's Summer of Innovation project and lessons learned from it might serve as the basis for a larger initiative that is multi-agency and encourages partnerships in a systemic way with the afterschool community.

We suggest the following principles for such an initiative:

- A requirement of partnership between a school and/or community based afterschool provider and organizations or individuals with STEM content expertise;
- An absolute priority that any proposed project must create pathways that move participants between opportunities at the elementary, middle, and high-school levels such that students are able to move along the pipeline if they become engaged and interested;
- A requirement that all projects include a clear plan for staff professional development in STEM program/curriculum content and pedagogy;
- Mentoring and exposure to diverse role models as a strong component of the program. This could include a strong role for volunteers from organizations with a strong STEM content focus such as federal labs, universities, and corporations;
- Additional points awarded if the program targets children and youth from populations traditionally underrepresented in STEM fields, regardless of academic performance; in this case, there must be a strong research component that studies the barriers for these populations' self-selection into STEM enrichment programs;
- Proposed program must be free of charge to students from a school attendance area in which not less than 40 percent of the children are from low-income families (defined as those children participating in free- and reduced-lunch programs), or not less than 40 percent of the children enrolled in the school are from such families;

- A clear articulation of goals and outcomes that are appropriate and feasible in afterschool settings;
- Clear application of quality and outcome indicators in designing the program and a rigorous evaluation plan.

Additionally, we recommend that attaining STEM literacy and/or proficiency not be measured solely through impact on classroom standardized test scores but also through measures of creativity, problem solving skills and innovation, and enhanced interest in STEM fields through meaningful design of hands-on projects. Furthermore, we recommend that research include tracking students when possible to determine if they pursue additional STEM education. Success in such an endeavor must be recognized through other means that are recognized and valued.

Sincerely,

Anita Krishnamurthi
Director of STEM Policy

---

[i] *For the purposes of this document and the ensuing discussion, we define "afterschool" as programs which provide an array of safe, supervised, and structured activities for children and youth that are intentionally designed to encourage learning and social development outside of the typical school day. Programs generally operate during the hours immediately following school dismissal; however, they also include activities that occur before school, on weekends, over school breaks, and during the summer. They may be located at a school or off-site (but usually have a link to the school(s)). Programs provide a variety of activities, but an engaging, hands-on learning approach and less formal environment are common across all programs. These programs are different from individual activities, such as sports, special lessons, or hobby clubs. Programs may be delivered through partnerships between public and private entities and may employ credentialed teachers and/or qualified community educators. They may be supported by parent fees or subsidized by federal, state, and local governments, grants, or philanthropic gifts, or any combination of these resources.*

[ii] *America After 3pm, Afterschool Alliance (http://www.afterschoolalliance.org/AA3PM.cfm)*

[iii] *STEM Learning in Afterschool: An Analysis of Impact and Outcomes (Afterschool Alliance, 2011; http://www.afterschoolalliance.org/STEM-Afterschool-Outcomes.pdf)*