Afterschool Alliance

Afterschool Programs as Partners in STEM Education:
Policy Recommendations

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Afterschool programs can and should play a key role in supporting the future of the country's STEM workforce. Education policies should support that role. According to the Bureau of Labor Statistics, by the year 2020 there will be 9.2 million jobs in the STEM (science, technology, engineering and mathematics) fields—that's up from 7.9 million in 2010. These fields provide tremendous opportunities for those who pursue them, and they are essential for the economic well-being of the United States. Not only will there be more openings in the STEM fields, but many other jobs will require STEM-related skills. To meet the needs of industry and ensure a scientifically literate public, the country's education system must foster equitable access to and success in these fields. This means engaging young people—male and female—of every economic status and ethnicity in multiple and varied learning environments.

The before-school, afterschool and summer settings (known collectively as afterschool) play a valuable role in closing the opportunity gap facing many children and youth from underserved and underrepresented communities. Of the 8.4 million children currently in afterschool programs, ethnic minority children are more likely than others to participate.[i] Twenty-five 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 national average of 15 percent. Girls attend afterschool programs in equal numbers to boys. Afterschool is the ideal setting to reach the populations the country needs to widen the STEM-pipeline through experiences that supplement and complement the school day.

Afterschool programs are engaging children and youth in STEM learning, including children and youth who may not otherwise be selected to, or choose to, participate in STEM programs. They provide a different mode of intervention—one that allows matching learning experiences to students' interests and facilitates project-based learning that drives home the relevance and importance of STEM in our daily lives. They give young people the opportunity to learn through solving problems and through failing—an element crucial to research, experimentation and innovation; science and engineering fields require persistence in the face of failure to solve the world's problems. Additionally, mentoring and exposure to role models—key components of afterschool—are particularly effective in engaging youth of color.

High-quality afterschool STEM learning programs are having significant impact on the young people who participate. A recent study showed participants had improved attitudes toward STEM fields and careers, increased STEM knowledge and skills, and a higher likelihood of graduating school and pursuing a STEM major in college.[ii] Policies that seize on the attributes of afterschool and its ability to cultivate effective STEM education will allow afterschool programs to become even more effective and integral partners in improving the quality of STEM education.

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1. Establish a pilot program during the hours after school that brings STEM education to populations who are currently underrepresented in the STEM fields.

A recent PCAST report [iii] recommended developing an initiative for a wide range of high-quality STEM-based afterschool programs spanning several agencies and focused on creating opportunities for inspiration through experiences outside the classroom. **Congress should authorize a competitive grant program, based on best practices, that supports afterschool STEM programs and utilizes appropriate outcome and quality indicators.** This program should reflect efforts to maximize federal investments in STEM education across federal agencies—an undertaking that Capitol Hill, the White House, and the STEM and afterschool communities support. Student populations that need the most help should be served by the initiative, and it should build on the successes of other federal afterschool investments, such as the 21st Century Community Learning Center initiative. The effort should also support professional development for providers, and be subject to evaluation and research to inform strategies for encouraging more traditionally underrepresented populations to pursue study and careers in the STEM fields.

2. Policy makers should recognize the role afterschool programs play in STEM education and explicitly support them in K-12 STEM education initiatives and legislation. Likewise, federal and state funding streams for afterschool programs should support STEM education programs.

Many public STEM education initiatives, funding streams and legislative initiatives target only the formal K-12 school setting and classroom teachers. While these settings and programs play a central role in effective STEM education, afterschool and summer learning programs can foster increased interest and success in STEM disciplines and build STEM literacy. **School and classroom resources that support STEM education should be also accessible to afterschool program providers and staff, and federal and state STEM education initiatives should explicitly cite afterschool as a strategy to improve the teaching and learning of STEM disciplines in legislative and regulatory guidance.** These public funds should be invested in promoting stronger partnerships between classroom teachers and afterschool providers; joint professional development with afterschool educators; and teacher training programs that recognize the value of the afterschool setting by allowing practicum, placements, etc. in afterschool/summer programs.

A number of existing federally-funded afterschool programs could provide some level of support for STEM education. While the 21st Century Community Learning Centers program is the only exclusive and substantial federal funding source for afterschool, before-school and summer learning programs, other agencies—such as the Department of Justice, the Corporation for National and Community Service, and the Department of Housing and Urban Development—invest in afterschool programs that could help support STEM learning. **Given the call to grow and sustain a STEM workforce, these agencies should consider how their investments in afterschool can also support better STEM education, and their guidance to employees and the field should embrace afterschool as a setting to teach and learn these disciplines.**

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

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

[iii] *http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-stem-ed-final.pdf*