





Resources on Afterschool STEM prepared by [STEM Next](#)

<p><b>Measuring the impact of STEM in Afterschool: Research &amp; Instruments</b></p> 	<p><a href="#">Afterschool &amp; STEM: Systems-Building Evaluation 2016</a> by Patricia Allen and Gil Noam, PEAR at Harvard University. The 2016 11-state study on the impacts of STEM in afterschool provides the evidence demonstrating that STEM in afterschool works.</p> <p><b>Instruments used in the 11-state study</b></p> <p><a href="#">Summary of Common Instrument Suite</a></p> <p>The Common Instrument Suite (CIS) is a self-report survey that measures a variety of science, technology, engineering, and math (STEM)-related attitudes, including STEM interest, STEM career knowledge, and STEM identity. It was specifically developed with informal, afterschool, outside-of-school time (OST) STEM programs in mind. The purpose of the survey is to better understand how informal STEM programming impacts students' perceptions/ attitudes towards STEM.</p> <p><a href="#">Summary of Dimensions of Success</a></p> <p>Dimensions of Success (DoS) is an overarching framework that defines key aspects of a quality STEM learning experience. DoS forms the backbone of a suite of tools and guides designed to help out-of-school-time (OST) programs (e.g., afterschool programs, summer camps, etc.) improve the quality of their STEM offerings. It was developed and studied with funding from the National Science Foundation (NSF) by The PEAR Institute, along with partners Educational Testing Services (ETS) and Project Liftoff. The DoS suite of tools allows researchers, practitioners, funders, and other stakeholders to track the quality of STEM learning opportunities and to pinpoint strengths and weaknesses. The Dimensions of Success observation tool is a validated research tool, with a validation paper published in Science Education.</p> <p><a href="#">A Guide to PEAR's STEM Tools: Common Instrument Suite &amp; Dimensions of Success</a></p>
	<p><a href="#">Click2SciencePD</a>, developed by Nebraska Extension with funding from the Noyce Foundation, provides online STEM professional development resources for out-of-school time trainers and coaches supporting frontline staff or volunteers working directly with youth. The Click2Science blended professional development model uses a variety of ongoing professional development experiences to improve the instructional skills of OST professionals while facilitating STEM learning experiences. Click2Science offers resources including staff development guides webinars, and self-directed web lessons approved for professional development requirements in 42 states.</p>

	<p>Since 2012, the <a href="#">STEM Funders Network</a> has provided member foundations and businesses who are engaged in STEM related educational investments the framework and support services to learn from one another and collaborate for greater impact by leveraging resources, ideas and leadership. <a href="#">Learn more</a> about the four core principles the STEM Funders Network believes in.</p>
	<p>The <a href="#">STEM Learning Ecosystems</a> Initiative is built on over a decade of research into successful STEM collaborations, and seeks to nurture and scale effective science, technology, engineering and math (STEM) learning opportunities for all young people.</p> <p>Launched in Denver at the Clinton Global Initiative, the STEM Funders Network STEM Learning Ecosystems Initiative forms a National Community of Practice with expert coaching and support from leaders such as superintendents, scientists, industry and others.</p> <p>The 56 communities selected from across the United States compose a national Community of Practice and have demonstrated cross-sector collaborations to deliver rigorous, effective preK-16 instruction in STEM learning. These collaborations happen in schools and beyond the classroom—in afterschool and summer programs, at home, in science centers, libraries and other places both virtual and physical. They spark young people’s engagement, develop their knowledge, strengthen their persistence and nurture their sense of identity and belonging in STEM disciplines. As these STEM Ecosystems evolve, a student will be able to connect what they learn in and out of school with real-world learning opportunities, leading to STEM related careers and opportunities.</p>

### Foundational Key Research

[Planning Early for careers in Science](#) by Rober Tai, Christine Qi Liu, Adam V. Maltese, Xitao Fan

This foundational research suggests early encouragement and interest in sciences is an indicator of likeliness to graduate with a science degree. Research further suggests we should pay close attention to children’s early exposure to science at the middle and even younger grades.

[Out-of-School Time Science Activities and Their Association with Career Interest in STEM](#) by Katherine P. Dabney, Robert H. Tai, John T. Almarode, Jaimie L. Miller-Friedmann, Gerhard Sonnert, Philip M. Sadler & Zahra Hazari (2012).

Results indicate that students’ participation in OST activities, as well as their middle school interest in science and mathematics and their gender, plays a significant role in university career interest in STEM. Conclusions suggest that making OST clubs and competitions and the inclusion of non-fiction and science fiction within English Language Arts programmes may be beneficial to the development of students in STEM careers.

[Identifying and Supporting Productive STEM Programs in Out-of-School Settings](#) by National Research Council 2015

To help policymakers, funders and education leaders in both school and out-of-school settings make informed decisions about how to best leverage the educational and learning resources in their community, this report identifies features of productive STEM programs in out-of-school settings. Identifying and Supporting Productive STEM Programs in Out-of-School Settings draws from a wide range of research traditions to illustrate that interest in STEM and deep STEM learning develop across time and settings. The report provides

*guidance on how to evaluate and sustain programs.* This report is a resource for local, state, and federal policy makers seeking to broaden access to multiple, high-quality STEM learning opportunities in their community.

**Afterschool STEM support documents**

[Students Achieve More with Afterschool STEM](#) by Afterschool Alliance

[State of Girls & Women in STEM](#) by NGCP