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FR: Chris Neitzey, Director of STEM Initiatives, Afterschool Alliance & Ron Ottinger, Director, STEM Next, University of San Diego (co-chairs of the Afterschool STEM Hub)

RE: Supporting afterschool programs as a core strategy for equitable access to STEM learning and workforce development

The Afterschool STEM Hub¹ congratulates President Elect Biden on the results of the 2020 presidential election. We look forward to working with you and your Administration over the next four years to increase equitable access to education and ensure all of our nation's students are prepared for future careers.

Our complex and changing world demands an adaptable workforce that is prepared to solve tough problems and find creative solutions to challenges. Climate change poses an immense threat, and solving these problems will require new and bold ideas that include new voices. Green infrastructure and the high-paying careers associated with these initiatives will require a high-skilled workforce, and the opportunity to pursue these careers must be provided to all students. Improving educational opportunities in science, technology, engineering, and mathematics (STEM) will cultivate students' curiosity and creativity, help them make evidence-based decisions, and solve problems through experimentation—all skills needed to solve the issues we face as a country and civilization. Supporting high-quality STEM education for *every student* is also vital to our country's social and economic prosperity.

We must also respond to the immediate impacts the COVID-19 pandemic continues to have on our students, families, schools, and communities. Students have missed valuable time in classrooms and afterschool programs, losing out on the hands-on learning opportunities that keep them engaged in school and spark curiosity and passion in STEM subjects and future careers. It will also be critical that schools do not resort to an exclusive focus on remediation as we emerge from the pandemic and instead rely on partners who have proven their value as STEM learning resources to support students outside of the classroom. The power that afterschool and summer STEM programs have in helping students connect their learning to real world experiences will be more critical as we emerge from the pandemic.

However, studies show that elementary school students receive less than an hour of science instruction per weekⁱ. As they grow older, low-income students are also less likely to have access to high-quality, hands-on STEM learning compared to their wealthier peers. We also know research has shown that interest and success in STEM subjects is directly correlated, and the relationship between STEM mindsets and pursuit of STEM majors is strongest for female and low-income students. Students must see themselves in STEM and understand the pathways to pursue these interestsⁱⁱ. With 80 percent of a student's waking hours spent outside of schools, afterschool programs play a vital role in mitigating these inequities by providing students with hands-on STEM learning, engaging students in project-based STEM programs and supporting a wide range of students all across the nation to identify with STEM subjects and careers. These programs also leverage partnerships with additional informal STEM partners, including science centers and museums, colleges and universities, and businesses with a vested interest in a skilled workforce, creating ecosystems of STEM learning for students.

¹ The Afterschool STEM Hub is a collaboration of national afterschool leaders and stakeholders united in the belief that afterschool, summer and other out-of-school-time education programs are crucial components of a larger STEM learning ecosystem. This group is led by the [Afterschool Alliance](#) and supported by [STEM Next](#) at the University of San Diego, which houses the afterschool STEM work started by the Noyce Foundation. For more information, see www.afterschoolstemhub.org



The Need: 4.5 million kids from lower-income families currently attend afterschool programs, but 10.1 million more would take part if programs were availableⁱⁱⁱ. Meanwhile, higher income parents spend more than seven times as much as low-income parents on their children’s enrichment activities, leading to a huge learning and opportunity gap^{iv}. By 6th grade, middle class children have spent 4000 more hours in afterschool and summer learning programs than low-income youth. Afterschool programs support STEM learning independently from classroom learning, much like the way immersing oneself in a language in multiple settings increases fluency.

Call to Action: We call upon President-Elect Biden to use the resources of the federal government to invest in afterschool programs and ensure students and families have access to learning and support outside of the classroom.

To make this vision a reality, we recommend the following actions:

1. **Support emergency supplemental funding for the 21st Century Community Learning Centers Program in the next coronavirus relief package** – Provide \$1.2 billion in additional funding and greater flexibility for the Nita M. Lowey 21st CCLC program to make it easier for parents to work and help children continue their learning in an academically supportive environment, especially when schools are operating virtually and not offering class in-person, a recommendation that is consistent with the bipartisan 21st CCLC Coronavirus Relief Act (S. 4868).
2. **Provide funding in the Biden Administration’s first budget proposal to increase the availability of high-quality afterschool STEM programs for those who need it the most:**
 - a. **Include a bold proposal to provide access to affordable high-quality afterschool, before school, and summer learning programs through 21st CCLC for 2.5 million low-income students within the President’s FY2022 Budget.** This investment of at least \$2.5 billion will combat learning loss and support students’ social and emotional success as the nation transitions into recovery.
 - b. **Fully fund Title IV Part A of the Every Student Succeeds Act at the authorized level of \$1.65 billion.** Full funding will give students the well-rounded education they need to be engaged and successful and will support crucial opportunities for hands-on STEM learning, increase and improve computer science instruction, and help integrate informal and formal STEM programs.
3. **Seek out and include informal STEM education stakeholder input as you establish federal agency priorities.** Ensure that afterschool and informal programs are eligible partners for federal grants that support STEM education goals, including in computer science, workforce development, and education efforts around climate change adaptation and mitigation.
 - a. **Ensure that the Domestic Policy Council and the Office of the Secretary of Education** include staff that understand and appreciate the benefits of afterschool and informal learning settings.
 - b. **Appoint a STEM coordinator at the White House** who will engage formal and informal STEM education stakeholders and drive a STEM education agenda across the federal government.
4. **Invest in an ambitious afterschool STEM research and practice agenda.** To expand research-based knowledge about productive strategies to support STEM learning in afterschool programs, prioritize investments in research and practice at the National Science Foundation and the Department



of Education to understand and document how STEM learning occurs across diverse settings and over time for a wide range of young people. This research should be used to inform education investments across the federal government and foster interagency collaborations in the afterschool STEM programming portfolio.

- a. **Launch a systemic research initiative at the Institute of Education Sciences** to fund competitive proposals to develop a range of longitudinal, ecosystem-wide measures to monitor and measure the availability, uptake, and effects of afterschool and informal STEM learning programs on students' long term outcomes.
- b. **Propose robust and sustained support for the National Science Foundation's Education and Human Resources Directorate** with directions to maintain a vibrant afterschool research portfolio, including building upon recent convenings held by the Afterschool STEM Hub to bring together researchers and practitioners to incorporate community needs and values into assessment tools for afterschool STEM programs.
- c. **Prioritize informal STEM learning in future rounds of Education Innovation and Research (EIR)** grants to support, develop, implement, replicate, or take to scale evidence-based innovations happening in informal settings like afterschool and summer programs, and museums and science centers. Within the \$65 million set-aside for STEM in EIR, we ask that informal STEM become a competitive priority for future grant rounds.

5. Leverage the expertise and resources of federal agencies to support education initiatives in afterschool STEM programs. The US Department of Education has established inter-agency agreements with four federal agencies (NASA, NOAA, NPS, and IMLS) that have brought new STEM learning resources to afterschool and summer programs through the 21st CCLC program. We encourage the Biden administration to leverage additional agencies, including the National Institutes of Health, United States Geological Survey, EPA, Department of Energy, Department of Defense, Department of Agriculture, and the Smithsonian to bring new content experts and STEM experiences to students in afterschool programs.

6. Use the reauthorization of the Higher Education Act to support professional development for both in-school and out-of-school educators. Support the use of informal education spaces (such as science centers and afterschool programs) to revamp teacher training. Explore other non-traditional professional development programs for afterschool and STEM educators, relying on greater organizational collaboration and high-quality STEM facilitation training rooted in the best practices of youth development. A greater emphasis must be placed on providing educators with implicit bias training so that educators do not inadvertently discourage students from underrepresented groups from pursuing STEM education pathways and careers. Finally, efforts to increase diversity within teaching should also include afterschool educators in those programs. Building pathways for afterschool staff to pursue post-secondary education and teaching credentials as formal school teachers will be key to addressing the racial gap of educators.

ⁱ R. Dorph, P. Shields, J. Tiffany-Morales, A. Hartry, T. McCaffrey, "[High hopes—few opportunities: The status of elementary science education in California](#)," Sacramento, CA: *The Center for the Future of Teaching and Learning at WestEd*, 2011

ⁱⁱ <https://www.americanprogress.org/issues/education-k-12/reports/2020/10/14/491542/early-high-school-stem-perceptions-associated-postsecondary-outcomes/>

ⁱⁱⁱ <http://www.afterschoolalliance.org/AA3PM/>

^{iv} http://www.hamiltonproject.org/charts/enrichment_expenditures_on_children