Photo Credit: Shaula Marsh/Big Car Collaborative

This is Afterschool | STEM

Re-engaging students in an equitable recovery

The hands-on learning approach of quality afterschool STEM programs offers a natural platform for re-engaging students as they return to classrooms. Hands-on, project-based STEM learning in afterschool supports students in connecting what they learn in the classroom to future careers while developing a new generation of problem solvers in STEM fields.

Afterschool STEM offers unique and essential supports.

Social-emotional Learning: Providing opportunities that empower youth voice and choice, and develop decision making skills are keys to re-engaging students in learning recovery efforts. Afterschool STEM programs offer the low-risk environment for project-based learning that empowers youth agency and skill building around effective communication and teamwork, in addition to problem solving skills.[1]
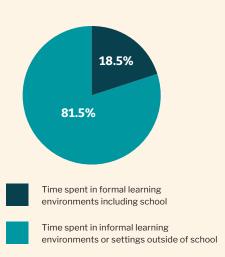
Engaging opportunities: 65% of parents with children in online or hybrid school don't believe the STEM offerings their child received during the pandemic meet their standards of quality, engaging activities.[2] Afterschool STEM engages students in hands-on, real-world projects that offer innovative ways to practice STEM skills in an informal space. This makes STEM more accessible, more interesting, and helps build fluency, much like immersing oneself in a new language.

Opportunities for all: The 2020 edition of America After 3PM found that families in the highest income bracket spend more than five times as much on out-of-school time activities per year than families in the lowest income bracket, spending roughly $3,600 versus $700 annually for one child.[3] Affordable and free afterschool STEM programs help provide these opportunities to all students by offering engaging learning programs regardless of their income.

A chance to follow their spark: High-quality afterschool STEM cultivates interest, builds relevant STEM skills, and helps students connect STEM to their lives and future careers.[4]

Learning doesn't just happen in school.

For students in elementary through high school, more than **80%** of their time is spent learning outside of school—at afterschool and summer programs, in libraries, museums, science centers, or at home or in the community. Just **20%** of their 16 waking hours are spent in school.[5]

18.5%

81.5%

■ Time spent in formal learning environments including school

■ Time spent in informal learning environments or settings outside of school

Source: The LIFE Center's Lifelong and Lifewide Diagram.[5]

Students need to feel safe and supported to re-engage in learning after this period of isolation. Afterschool STEM provides the hands-on opportunities to help students re-ignite their passion for learning.

Growth Among STEM Jobs

Jobs requiring STEM skills continue to grow, but too many students lack opportunities to learn and develop these skills.

Computing and mathematical jobs are expected to grow by 14% between 2018 and 2028, outpacing all other STEM careers. [6]

By 2025 more than 2 million STEM jobs will go unfilled due to a lack of skilled candidates.[7]

Women and minorities are underrepresented:

18% of bachelors degrees in engineering and computer science are earned by women.[8]

15% of the computing workforce and 12% of the engineering workforce are made up by African American and Latino workers.[9]

Afterschool Can Help Close the Gap

7 million students take part in afterschool STEM.[10] These programs:

- provide opportunities for career exploration and access to STEM role models, helping students understand what types of jobs are available and how they can work in these fields.[11]

- boost students' proficiency in math and science, increase their likelihood of graduation, and put them on the path to pursuing a career in the STEM fields.[12]

- encourage students to seek more opportunities to engage in STEM learning, sparking a life-long connection and curiosity in STEM fields.[13, 14]

Sparking Interest, Inspiring Careers

A recent analysis of 160 afterschool STEM programs across 11 states found that among the nearly 1,600 participating students: [15]

80% made positive gains in science career knowledge

78% increased interest in STEM

73% increased in "science identity"—a personal belief that one can succeed at science

Program Spotlight: Vermont's Linking Engineering to Life

Vermont Afterschool launched Linking Engineering (LEL) to Life as a response to the pandemic and the limited opportunities students had to engage in engineering activities in afterschool. The program offers a mentor-focused model that trains women college students from the University of Vermont's College of Engineering and Mathematical Sciences to co-facilitate virtual engineering experiences with students and afterschool program staff across Vermont. The program begins with weekly, real-world engineering challenges assigned to groups of students. The program combines the hands-on learning with inspirational videos about women in STEM careers to highlight the many barriers women have overcome in their fields. In the second part of the program, youth identify their own engineering problems to solve based on challenges within their community. The project-based nature of LEL provided opportunities for students to work together, with 89% of participants fully agreeing that they felt a part of a team during the program. Additionally, 77% of participants now fully understand who an engineer is and the skills and mindset they need to do their job and 71% fully agreed that they have a clear understanding of the Engineering Design Process at the conclusion of the program.

Sources

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Afterschool Alliance

The Afterschool Alliance is working to ensure that all children have access to affordable, quality afterschool programs.