

Photo courtesy of
David Pierini



STEM AND WELLNESS

A POWERFUL EQUATION FOR EQUITY





Photo courtesy of The Walking Classroom

IMAGINE...

... THE POTENTIAL OF EMPOWERING THE 10.2 MILLION CHILDREN IN AFTERSCHOOL PROGRAMS WITH SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) SKILLS, WHILE PROVIDING THEM WITH OPPORTUNITIES TO EAT HEALTHY AND STAY ACTIVE.

Envision the thriving, diverse, and healthy workforce they could become, driving innovation, solving the world's greatest challenges, and contributing to our shared prosperity.

This brief describes the benefits of blending **STEM** with healthy eating and physical activity. The brief is intended to generate dialogue, foster collaboration, and

stimulate ideas for integrating these two important topics together.

Combining STEM and wellness is both a powerful equation for equity and an efficient way to implement both practices in a complementary manner, which will lessen the challenge of prioritizing one topic over another and help meet the shared goals of communities, schools, and families.



Photos courtesy of BirdSleuth K-12, Cornell Lab of Ornithology

A DIVERSE AND HEALTHY WORKFORCE

Equity issues like access and awareness impact STEM and wellness and our future workforce. To establish a diverse and healthy workforce well prepared for the careers of tomorrow, imbalances in STEM and wellness must be addressed today. A **2017 report** by the U.S. Bureau of Labor Statistics found that as of May 2015, STEM fields accounted for 8.6 million jobs and that the prevalence of STEM careers within the U.S. job market was trending upward. This, coupled with the fact that 93 percent of STEM occupations “had wages significantly above the national average,” demonstrates why it is imperative that all individuals have access to these opportunities. Unfortunately, Latino, African American, and Native American populations are all drastically underrepresented in STEM careers. At the same time, **obesity rates have risen** over the past few decades among Latino, African American, and Native American children. By engaging all students in STEM education—while providing physical activity and healthy eating opportunities—educators can make long-term contributions to a more equitable socioeconomic future for everyone.

AN OPPORTUNITY TO FOSTER COMMUNITY RESPONSIBILITY

The National Recreation and Park Association **recently reported** that the most

likely outside partners of recreation agencies are local school districts and community-based organizations. In the most recent **America After 3 PM report**, 73 percent of families report that their child’s afterschool program is located in a public school building. As thousands of recreation agencies commit to adopting national best practices for healthy eating and physical activity, schools have a tremendous opportunity to collaborate with recreation agencies for additional capacity. **Citizen science** — scientific research conducted by community members to create healthier neighborhoods, - nature exploration, and other activities have immense potential for bringing STEM and wellness together in meaningful ways at recreation program sites, in schools, and in afterschool programs. More flexibility in the afterschool space means that collaboration with recreation-based and other afterschool programs providing STEM education maximizes resources and complements in-school learning.

SCHOOL AND AFTERSCHOOL AS PARTNERS

When it comes to STEM education, access to **quality programs** – programs that result in positive youth outcomes - is a challenge, especially in low-income communities. Schools are in the unique position to prioritize STEM as a cornerstone of their academic portfolio and partnering with

afterschool providers helps ensure equitable access to high-quality programs for all students. As schools and afterschool programs work to support academics and wellness, working together to find alignment will support young people with continuity and ensure the highest impact. By combining STEM and wellness, academic achievement is fostered while school wellness goals are realized. Aligning these goals responds to the challenge of competing priorities, tight budgets, caregiver requests, and limited capacity.

RESEARCH TELLS US THAT KIDS WHO EAT HEALTHIER AND MOVE MORE PERFORM BETTER IN SCHOOL.

A GROWING MOVEMENT SUPPORTING FAMILIES, SCHOOLS, & COMMUNITIES

Research by the Afterschool Alliance shows that families want their children to be engaged in physical activity and healthy eating. Families also

expect their children to learn STEM skills, with **more than half of families** reporting that STEM learning is very important in their selection of an afterschool program for their children.

According to **STEM Ready America**, “Although STEM interest, identity, and understanding certainly develop in school, they are also developed and reinforced in out-of-school time settings, where K–12 students spend 80 percent of their waking hours.”

Catalyzed by the adoption of the **National AfterSchool Association Standards for Healthy Eating and Physical Activity in Out-of-School Time** (NAA HEPA Standards) by the YMCA of the USA, Boys and Girls Clubs of America, and National Recreation and Park Association, the healthy afterschool movement is growing. By 2020, **at least 5 million children** will attend afterschool or summer learning programs, provided by recreation agencies, schools, community based-organizations and others committed to wellness implementing national HEPA standards during program time.

As schools and organizations are asked to do more with less, combining the priorities of STEM and wellness, valued, by schools, communities, and families, makes sense.

CALL TO ACTION

This brief makes the case for blending STEM and wellness in the afterschool setting, and supplies a sampling of practical resources to make that synthesis a reality. The authors of this document challenge you—whether you work with or on behalf of schools, afterschool, communities, or families—to adopt the NAA HEPA Standards for Out-of-School Time and to use the information in this brief:

- As an **advocacy tool** for the integration of STEM and wellness.
- To **access at least two of the resources** on the next page to increase the impact of your own STEM or wellness efforts.
- To **share these resources with your local afterschool network** so more youth can benefit from the innovation of combining STEM and wellness and to empower providers so they do not have to sacrifice one to implement the other.

RESOURCES AND PROGRAM MODELS

4th Family utilizes basketball analytics to engage students with math and science: <http://www.4thfamily.org/stem-education-program.html>

BirdSleuth, *Cornell Lab of Ornithology*, offers K-12 resources that build science skills while inspiring young people to connect to local habitats, explore biodiversity, and engage in citizen-science projects: <http://www.birdsleuth.org>

Commit to Health and Conservation, *National Recreation and Park Association*, has seven simple activities to link health and conservation: <http://www.nrpa.org/parks-recreation-magazine/2016/april/commit-to-health-and-conservation-seven-simple-activities>

Design Squad Global, *PBS Kids*, provides hands-on activities and videos that promote engineering and connect 10- to 13-year-olds in out-of-school programs around the world: <http://pbskids.org/designsquad/parentseducators>

Engineering Our Health, *Teaching Institute for Excellence in STEM*, offers STEM School design, STEM curriculum, and STEM instructional support to schools: <http://www.tiesteach.org/solutions/engineering-our-health>

Expanded Learning STEM Quality Elements, *California AfterSchool Network*, explores the rationale behind STEM in expanded learning and describes what quality STEM learning looks like: <http://www.afterschoolnetwork.org/post/expanded-learning-stem-quality-elements>

Kitchen Science Investigators, *Georgia Tech*, links hands-on cooking and exploration for middle school students: <http://home.cc.gatech.edu/ksi/1>

Linking Food and the Environment, *Columbia University*, promotes scientific habits of mind through thoughtful, inquiry-based activities that integrate the study of personal health and food, food systems, and the environment: <http://www.tc.columbia.edu/tisch/resources-overview/curricula>

Living Classrooms, *Baltimore Urban Gardening with Students After School Program (BUGS)*, uses activities such as cooking, gardening, creative arts and movement, and entrepreneurial projects to help increase academic performance: https://livingclassrooms.org/ourp_bugs.php

National AfterSchool Association, the voice of the afterschool profession; the national membership organization for people who work with and on behalf of children and youth during out of school time. NAA's mission is to promote development, provide education, and encourage advocacy for the out-of-school-time community. Learn more and access resources at <http://www.naaweb.org>

National Girls Collaborative Project links a national network of organizations committed to informing and encouraging girls to pursue careers in STEM: <http://ngcproject.org>

NBA Math Hoops is a fast-paced basketball board game that teaches math skills by using statistics of favorite NBA and WNBA players: <http://www.nbamathhoops.org/chapter.php>

PLUM LANDING, *PBS Kids*, connects 6-9-year-old kids with nature and teaches them about ecosystems and environmental science: <http://pbskids.org/plumlanding>

Science Action Club, *California Academy of Sciences*, engages middle school youth in hands-on science through partnerships with afterschool providers: <http://www.calacademy.org/science-action-club-sac>

Science Club, *Northwestern University*, provides activities tested with Chicago Boys and Girls Club members and Chicago Public Schools, that include the science of food, sports, movies, medicine, and water: <https://sc.club.northwestern.edu/program/curriculum>

SciGirls, *PBS Kids*, offers educational materials that provide gender-equitable teaching strategies and hands-on inquiries, along with physical activities based on the concepts modeled in SciGirls' videos: <http://pbskids.org/scigirls/>

STEM Lesson Plans, *American Heart Association*, encourages students to explore linkages between sports performance and technology and the impact of healthy behaviors on math test scores: https://www.heart.org/HEARTORG/Educator/FortheClassroom/MiddleSchoolLessonPlans/Middle-School-Lesson-Plans_UCM_304280_Article.jsp

STEM Pathways to Healthy Eating and Physical Activity, *National AfterSchool Association*, offers a short discussion guide that explores the benefit of linking STEM and healthy eating and physical activity: <https://indd.adobe.com/view/c623cc5c-f1cf-4c31-9428-576a7df72070>

The Connectory, is a comprehensive directory of STEM opportunities—the go-to place for families and program providers to find STEM programs, local opportunities, and collaborators: <https://theconnectory.org>

CONTACT INFORMATION

ERIN HOGEBOOM, *Community Development and Network Strategy Manager*, ehogeboom@ngcproject.org

National Girls Collaborative
ngcproject.org

DANIEL W. HATCHER, *Director of Community Partnerships*, daniel.hatcher@healthiergeneration.org

Alliance for a Healthier Generation
healthiergeneration.org



Photo courtesy of
Jasmin Shah

A special thank you to the Afterschool Alliance, the California AfterSchool Network, the National AfterSchool Association, the National Recreation and Park Association, and staff at the Alliance for a Healthier Generation and the National Girls Collaborative for providing editorial support.

Any additional feedback is appreciated.