

U.S. DEPARTMENT OF EDUCATION INFRASTRUCTURE AND SUSTAINABILITY NOTES



School Grounds and Outdoors

The grounds and outside spaces of a campus are an important part of a school's overall physical infrastructure. School grounds serve many purposes for students and the school community, from recreation and play opportunities, to learning and ecological resources. Growing evidence shows that young people have less access to time outdoors than a generation ago.¹ Access to the outdoors is also influenced by socio-economic conditions, with youth living in historically under-resourced communities having fewer opportunities to experience the outdoors in healthy, learning-conducive, and environmentally-beneficial ways.² Utilizing school grounds for students to spend time outdoors is an opportunity to ensure all children have access to the benefits of being outdoors.

Increasingly, K-12 schools of all types across the United States are adopting practices aimed at “greening” their grounds and outside spaces, with efforts sometimes referred to as “living schoolyards” or “green schoolyards.”³ The aim of green schoolyards or schoolyards with access to greenery and natural elements is to strategically maximize the use of a school’s grounds to benefit learning, health, recreation, and the environment.



EAGLE ROCK ELEMENTARY SCHOOL, IN LOS ANGELES, CA, REMOVED 23,789 SQUARE FEET OF ASPHALT, REPLACING IT WITH PERMEABLE SURFACE AND NATIVE/DROUGHT TOLERANT TREES AND PLANTS, CAPTURING EXCESS RAINWATER.

Learning

Research has demonstrated that learning both about and in the surrounding natural environment can have beneficial results for students' attention, focus, and social emotional learning.⁴ Evidence shows that exposure to nature can improve students' concentration, reduce stress, improve self-discipline, and improve retention of subject-matter content.⁵ Schools can use their outside spaces for learning through the installation of outdoor classrooms and school gardens and by incorporating environmental concepts into curriculum and instruction practices.

Health Benefits

The outdoors are a part of the overall environmental quality of a school that can affect student health, including through air quality, water quality, and potential exposure to contaminants. Additionally,

¹ Clements, Rhonda. 2004. “An Investigation of the Status of Outdoor Play.” *Contemporary Issues in Early Childhood* 5 (1): 68–80. <https://doi.org/10.2304/ciec.2004.5.1.10>.

² Strife, Susan, and Liam Downey. 2009. “Childhood Development and Access to Nature.” *Organization & Environment* 22 (1): 99–122. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3162362/>.

³ “Living School Grounds.” Green Schoolyards America. <https://www.greenschoolyards.org/living-school-grounds>.

⁴ Mygind, Lærke, Eva Kjeldsted, Rikke Hartmeyer, Erik Mygind, Mads Bølling, and Peter Bentsen. 2019. “Mental, Physical and Social Health Benefits of Immersive Nature-Experience for Children and Adolescents: A Systematic Review and Quality Assessment of the Evidence.” *Health & Place* 58 (July): 102136. <https://doi.org/10.1016/j.healthplace.2019.05.014>.

⁵ Kuo, Ming, Michael Barnes, and Catherine Jordan. 2019. “Do Experiences with Nature Promote Learning? Converging Evidence of a Cause-And-Effect Relationship.” *Frontiers in Psychology* 10 (305). <https://doi.org/10.3389/fpsyg.2019.00305>.

access to the outdoors benefits students physical and mental health.⁶ Research shows, however, that most children today have fewer opportunities to play outdoors now than in previous generations,⁷ and that children are now less physically active. Current findings suggest that, taken together, increased exposure to pollutants and less access to nature are associated with declines in students' health and well-being, such as higher rates of asthma, learning disabilities, and obesity.⁸ Schoolyards are thus an important place for students to have access to play, participate in outdoor recreation, and experience nature, all of which have the potential to reduce stress and improve their physical health.

Ecological Benefits



AT STARMS EARLY CHILDHOOD CENTER, IN MILWAUKEE, WI, CHILDREN ENGAGE IN OUTDOOR EXPLORATION, MOVING WOOD PIECES, DESIGNING WALKWAYS, AND CREATING DIFFERENT STRUCTURES THROUGH LOOSE PARTS PLAY.

K-12 public schools manage an estimated two million acres of land in the United States. Public schools may improve their environments by making modifications to school grounds that benefit their communities. For example, schools may improve the water quality in their local environments through features such as bioswales, permeable pavers, and other stormwater infrastructure which restore groundwater resources, reduce flooding, and prevent pollution from entering local watersheds. In areas where excessive heat is prevalent, schools can work to reduce heat on their grounds by planting trees, installing shade structures, and applying white paint. Additionally, biodiversity can be improved by installing native plants that serve as habitat for local fauna and allow students to learn about them. One example of

schools serving as habitat is the proliferation of butterfly waystations on school grounds. Improving local environmental conditions assists in preserving local ecosystems which benefits both schools and their communities. Furthermore, each of these features serve both environmental and hands-on, active learning purposes.

Conclusion

Schools can use school grounds and their outdoor spaces for the benefit of student learning and health as well as the planet. Schools can access resources to learn how they can improve their grounds and outdoors on the [Green Strides School Sustainability Resource Hub](#). Organizations such as Green Schoolyards America, Children and Nature Network, and National Wildlife Federation offer free resources on outdoor learning and natural play environments on school grounds.

⁶ Louv R. *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin; 2005.

⁷ Loebach, Janet, Marcos Sanches, Julia Jaffe, and Tara Elton-Marshall. 2021. "Paving the Way for Outdoor Play: Examining Socio-Environmental Barriers to Community-Based Outdoor Play." *International Journal of Environmental Research and Public Health* 18 (7): 3617. <https://doi.org/10.3390/ijerph18073617>.

⁸ Strife, Susan, and Liam Downey. 2009. "Childhood Development and Access to Nature." *Organization & Environment* 22 (1): 99–122. <https://doi.org/10.1177/1086026609333340>.