

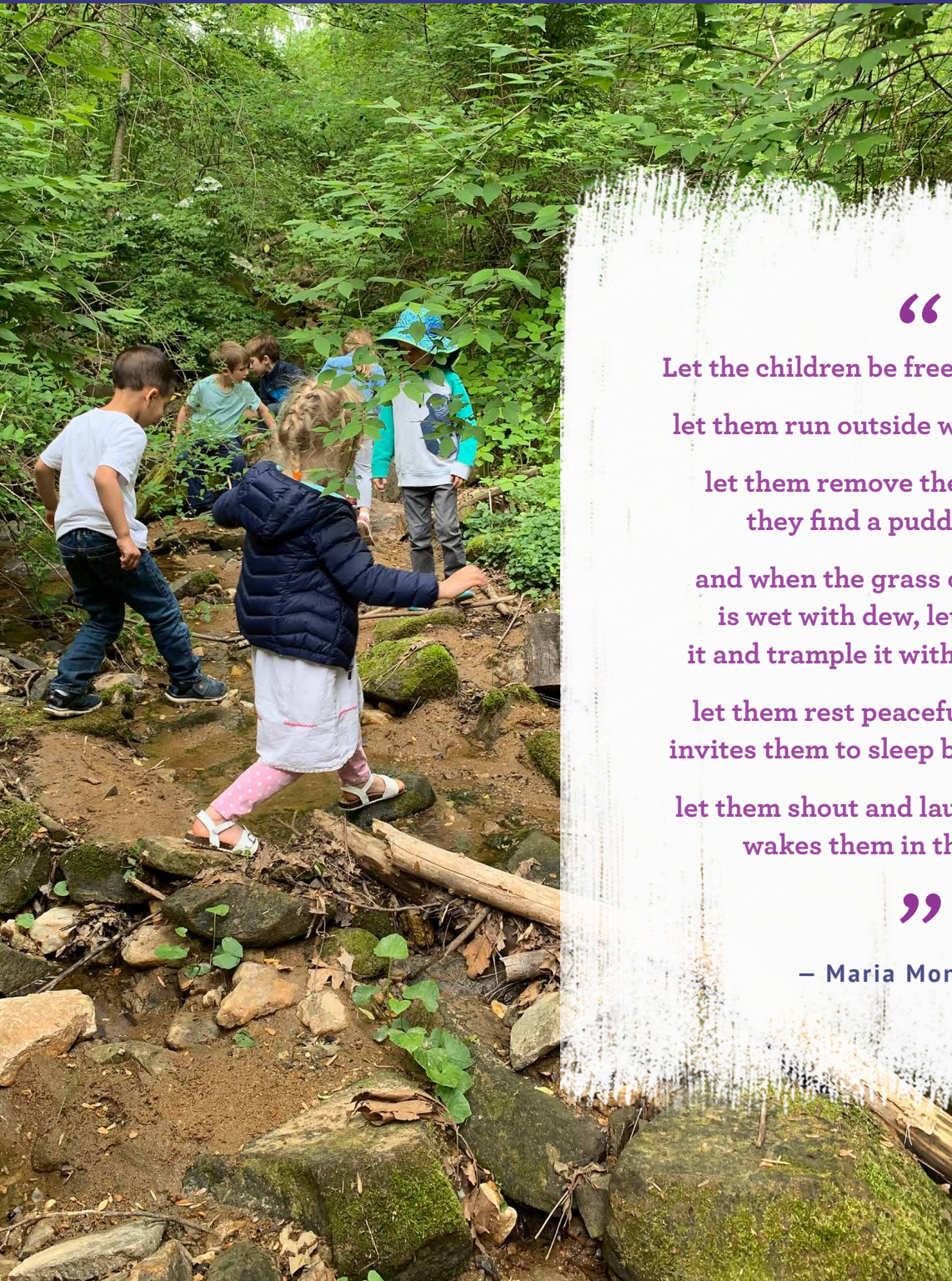


Trust for
Learning

Nurturing All Children in Nature

Ideal Learning in the Natural World

APRIL 2023



“

Let the children be free; encourage them;

let them run outside when it is raining;

let them remove their shoes when
they find a puddle of water;

and when the grass of the meadows
is wet with dew, let them run on
it and trample it with their bare feet;

let them rest peacefully when a tree
invites them to sleep beneath its shade;

let them shout and laugh when the sun
wakes them in the morning.

”

– Maria Montessori



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Introduction

Nature matters to human beings. We evolved in close connection with the natural world and, until recently, we lived in communities that developed in relationship to nature. Today, many of us are disconnected from our natural world, a disconnection that is often tied to historical inequities. The cost of this disconnect is high, especially for children. Overwhelming and well-documented research demonstrates that connecting to nature promotes physical, cognitive, and emotional well-being - lifetime building blocks for development. Yet young children, who delight in the natural world, are increasingly separated from nature and learn largely within the four walls of their schools and child care centers.

A decrease over time in children's access to nature has led to nature deprivation. Richard Louv coined the term "Nature Deficit Disorder" in 2005 to describe a contemporary and growing disconnect between humans and nature and the multiple, measurable consequences of this alienation. Today's children spend less than half the time playing outdoors than their parents did.¹ Childhood's growing disconnection from nature has many causes, including safety concerns, limited access, the disappearance of open green space, social, political, and cultural factors, the influence of technology, and systemic environmental injustices against communities of color.

The recent pandemic has brought opportunities for positive change with greater public awareness of and increased attention to the benefits of outdoor learning opportunities for all children. Outdoor early learning environments including "forest Kindergartens" have been featured [in the News](#) as a hopeful trend in education, but they remain small in number and are typically found in more affluent neighborhoods.

Despite many challenges, we see encouraging signs of renewed focus on children and nature. There is growing awareness of the [short- and long-term benefits](#) of nature; support for small and large changes

A note on language:

The brief uses the terms nature-based learning, nature elements, or similar terms rather than the more commonly used "outdoor education" or "playground." By doing so, it seeks to emphasize that it is the act of engaging with nature itself that provides essential elements for young children; this includes nature learning in indoor classroom settings and outdoor spaces, weaving nature elements and experiences throughout the child's experience.

in practice; and achievable pathways that will help redefine early learning narratives and policies in ways that reconnect children to nature. This reconnection with nature is particularly urgent today, as children and their caregivers face growing mental health crises and the unfolding threat of climate change. **We believe that we stand at a critical moment to advocate for equitable access to nature-based early childhood education initiatives in service of all children and communities.**

This brief describes the short- and long-term benefits that connection to nature and access to the natural world bring to children, and demonstrates that change is possible through both small and large modifications in any setting.

In line with the Trust's commitment to research-based best practices, the brief includes samples of the extensive body of research that supports the foundational value of nature in early childhood. It suggests quality improvements that can be readily implemented while highlighting larger systemic issues that should be addressed.

In addition, program snapshots offer practical examples of how educators are strengthening access to nature experiences across a wide range of settings and in ways that meet children and families where they are. Several of these snapshots also highlight significant barriers and ways these can be addressed.

¹Louv, R. (2005). Last Child in the Woods: Saving our Children from Nature-Deficit Disorder. Page 10. Algonquin Books, Chapel Hill.



Courtesy of Urban Sprouts

Fertile Soil: Strengthening Ideal Learning Environments

Founded in 2011 by a small group of philanthropists, Trust for Learning (the Trust) has a mission of creating access to high-quality, developmentally-appropriate, whole-child learning approaches for ALL children from birth to age eight. As part of its work, the Trust convenes a group of pedagogical and subject-matter experts known as the Ideal Learning Roundtable (ILR), to advance a shared agenda of equitable access to high-quality learning environments.

Drawing directly from their fields of practice, ILR members deeply understand the conditions that support young children's developmental needs and agree that engagement with nature is an essential element of quality early childhood life and education. This brief is a reflection of the shared values of the group and the culmination of recent discussions about the goals, barriers, and strategies for providing nature-based learning in publicly-funded ideal learning settings.

A small working group steered the creation of this document and a larger circle of ideal learning practitioners and experts in nature learning served as a peer review group. Several sites were selected to illustrate aspects of nature engagement in practice.

Ideal Learning Principles: Affirming the Importance of Nature in Early Childhood

The Ideal Learning Roundtable (ILR) centers its practice around [nine principles of ideal learning](#), each considered to be an essential component for quality and life-affirming early childhood care and education for all children. Woven throughout the nine principles is a recognition of the importance of creating connections for the young child: connection to self, to others, to the earth, and to their steadily expanding world. While one principle, in particular, highlights the essential role of the physical learning environment (including outdoor and indoor nature) in child development, this brief goes further, emphasizing nature as a thread woven seamlessly

and continuously through each principle. Given the [scientific basis](#) of these principles, they translate easily indoors and outdoors to highlight key elements of the growing child's ideal ecology. When children are supported to explore in a way that is appropriate for their age and unique needs, nature is inherently an ideal learning environment. More than any other age group, young children's physical, mental, and emotional health is connected to the world around them. Community, relationships, nature, and broader social and economic contexts are essential pillars of a child's ideal ecology and impact their development, positively or negatively.

Deep roots: Nature as an ideal learning environment

Decision-making reflects a commitment to equity.

Every child, regardless of race, gender, ethnicity, language, disability, sexual orientation, family background, or family income has access to the educational resources that they need to thrive. This includes their birthright of daily connections with nature. Ideal learning approaches are committed to creatively re-connecting all children with the natural world in partnership with communities and with recognition of each community's unique cultural wealth and context.

Children construct knowledge from diverse experiences to make meaning of the world.

The natural world provides dynamic experiences in a biodiverse environment with daily and seasonal rhythms that engage children's curiosity and wonder. Time with nature allows children to expand the boundaries of their knowledge and to develop the ability to test and observe essential foundations for scientific thinking while building a sense of self in connection to their local community and the larger world.



Play is an essential element of young children's learning.

Nature and outdoor environments provide a diverse range of experiences that support children's play. Play in natural settings is open-ended and invites choice, many opportunities for large and small motor development, appropriate risk-taking, cooperation, imagination, and creative problem-solving.



Instruction is personalized to acknowledge each child's unique development and abilities.

Nature is vast and offers a wide range of opportunities for each child to make connections including energetic engagement, group play, solitary activity, and the chance to quietly observe or dream. Each child can safely find their desired level of activity and participation. Nature experiences support self-regulation.



The teacher is a guide, nurturing presence, and co-constructor of knowledge.

Teacher and child are fellow explorers, engaging in activity and discovery together as they deepen their awareness of and connection to nature. The teacher/child relationship provides a safe platform for the child to take healthy risks; nature provides countless opportunities to do so.



Young children and adults learn through relationships.

Educators and families share the child's wonder at natural processes, moments of awe, wonder, and curiosity, and gently scaffold exploration and activity with and in nature. Nature provides opportunities to strengthen children's relationships with their educators and close caregivers by sharing experiences, overcoming challenges, and creating meaningful memories and stories to revisit together.



The time of childhood is valued.

Childhood itself needs time and space. In today's often pressured, hurried world, the slow rhythms of nature and sensory experiences engaging with the cycle of the seasons invite children to slow down, relax, breathe deeply, imagine and enjoy a sense of connection, calm, well-being, peace, and wonder. Nature provides a balance to children's increasing screen time, which is typically sedentary.



Continuous learning environments support adult development.

The natural world offers daily opportunities for learning - for children and adults. Educators see themselves and their children in new ways. This invites observation, discussion, and continuous learning. Given that educators bring varying levels of experience to nature-based learning, nature education should be included in educator development programs.



Learning environments are intentionally designed to facilitate children's exploration, independence, and interaction.

Educators working from the principles of ideal learning recognize the importance and impact of the physical environment on young children's healthy development, sense of safety, well-being, and ability to learn. The environment is a powerful teacher. In education, the "physical environment" is traditionally thought of as the child care or classroom space, with careful attention paid to such aspects as materials, equipment, furniture, and lighting. The ideal learning principles expand beyond classroom walls to include an essential experience of nature and the natural world around us in the young child's environment, care, and education. This element of nature is considered in the creation of appropriate indoor and outdoor spaces.

As such, the concept of environment is widened to include nature experiences indoors and, wherever possible, extending to healthy outdoor spaces. Elements of nature are brought into the classroom through the use of natural materials (wood, fabrics, stone, sand, water, and clay), and seasonal displays that allow children to see and handle objects from nature and build a connection to the cycle of the year. The inclusion of natural light, living plants, found objects from nature, and images from the natural world are supported by research that shows that nature elements in classrooms measurably reduce stress and anxiety, support self-regulation, and increase children's ability to focus.²

Depending on location and access, outdoor spaces incorporate opportunities for digging, climbing, rolling, jumping, running, skipping, water play, planting, and other essential unstructured gross motor movement, in addition to more conventional outdoor play that is often equipment-based. Where possible, outdoor activity may at times extend into local parks or open spaces to allow for greater exploration.

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If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it. Perhaps this is what Thoreau had in mind when he said, “the more slowly trees grow at first, the sounder they are at the core.” And I think the same is true of human beings.

”

— David Sobel

²Fyfe-Johnson, A. L., Hazlehurst, M. F., Perrins, S. P., Bratman, G. N., Thomas, R., Garrett, K. A., Hafferty, K. R., Cullaz, T. M., Marcuse, E. K., Tandon, P. S., (2021). Nature and children's health: A systematic review. *Pediatrics*, 148(4)

Uneven Ground: Inequities in Nature-Based Learning

For most of human history, all people grew and developed in and with nature but today, vast disparities exist. Access to outdoor early learning environments largely falls along [racial and/or economic lines](#): a 2017 [survey](#) by the Natural Start Alliance found that of 121 outdoor preschools identified, only three percent of students were Black, seven percent Hispanic, and less than 1% Native American.

By addressing equitable access to nature as a social and racial justice issue, we have the opportunity to highlight and tackle issues such as under-resourced environments, trauma, toxic stress, and obesity, all of which have a disproportionate impact on children of color or low income. We can be part of

an equitable solution to the impact of racialized and economic patterns that cause unequal outcomes for young people.

Ensuring access for those children who have physical disabilities is another critically important aspect of equity in nature engagement. Those working with differently-abled children will have additional considerations and, potentially, obstacles in providing access to nature experiences, reducing restrictions on participation, and ensuring safety with as much autonomy as possible. This aspect of access is not widely-researched or described in the literature.

There are many complex historical, cultural, economic, and policy reasons for the inequality of access to the benefits of outdoor and nature-based education.

Key reasons for unequal access include:

- **History of exclusion:** most modern nature-focused programs have been private and expensive, and have served a largely white, homogenous population that typically already had access to nature both at home and at school. This has limited serious discussion on wider implementation.
- **Educational policies** that emphasize a narrow definition of school readiness and academic preparedness, especially for children categorized as “at-risk.” Policies informed primarily by research on the importance of early language and math have failed to recognize significant research suggesting that all young children need to engage in large- and small-motor movement, play, exploration and imagination in support of their holistic cognitive, social and emotional development.
- **Inequitable urban planning practices**, including redlining and rezoning, which have created urban “deserts” – areas with limited green space and parks in lower-income communities and communities of color.
- **Budget constraints** and the expense of equipment, clothing, and supplies to support outdoor activity, including transportation, boots, rain gear, warm clothing, and sun protection.
- **Cultural factors**, including both health and safety concerns.

The cumulative result of these inequities is that the majority of nature-based programs remain private, expensive, and of service to a largely homogenous population that already typically has access to nature at both home and school.

It must also be noted that, even with access, the quality of outdoor spaces and nature experiences may themselves be inequitable. Factors such as proximity to industry, poor air quality, and pollution

are more likely to be concerns in densely-populated communities, communities of color, and low-income communities, adding significant impediments related to safety and ease of access. For example, people of color are more likely to be exposed to air pollution than their White counterparts regardless of income³ and are proportionally more likely to live within two miles of toxic industrial waste sites⁴.

Courtesy of Alice Birney TK-8 Public Waldorf School



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Passion is lifted from the earth itself by the muddy hands of the young; it travels along grass-stained sleeves to the heart. If we are going to save environmentalism and the environment, we must also save an endangered indicator species: the child in nature.

— Richard Louv

³Tessum, C. W., Paoletta, D. A., Chambliss, S. E., Apte, J. S., Hill, J. D., & Marshall, J. D. (2021). PM_{2.5} pollutants disproportionately and systemically affect people of color in the United States. *Science Advances*, 7(18), eabf4491

⁴Bullard, R. D., Mohai, P., Saha, R., & Wright, B. (2007). *Toxic Wastes and Race at Twenty: 1987-2007*. United Church of Christ Justice & Witness Ministries. Retrieved from <https://www.nrdc.org/sites/default/files/toxic-wastes-and-race-at-twenty-1987-2007.pdf>

Rooted in Research

A significant and growing body of rigorous research supports this, demonstrating the benefits of nature experience for all children of all ages. Research is interdisciplinary, crossing several academic and practical fields including Education, Public Health, Architecture and Planning, Medicine, Mental Health, and Environmental Studies. The literature addresses a wide range of topics; increasingly, as a promising sign, it includes consideration of long-standing equity issues in young children's access to nature and outdoor experience in general.

The Children and Nature Network (The Network) is perhaps the most frequently cited, comprehensive resource for this field. [The Network](#) manages a current, curated resource hub with a library of peer-reviewed research, reports, infographics, and tools to support educators, parents, care providers, and policymakers. The Network releases summaries of current research on its website and through a monthly Research Digest. Research is rigorously reviewed by a multidisciplinary Scientific Advisory Council before inclusion, and the Network places explicit emphasis on equity, inclusion, and diversity.

Courtesy of Foundation for Early Childhood Education, Head Start



Digging deeper: leaders in nature research

Research is conducted in a range of settings, including universities, medical centers, local governments, and school districts. The following are some of the leaders in this field.

- **North Carolina State University**, [Natural Learning Initiative](#)
- **University of California–San Francisco**, [Center for Nature and Health](#) (in partnership with UC Benioff Children's Hospital)
- **Prescott College**, [Center for Nature and Place](#)
- **Los Angeles Unified School District**, [Learning Green Initiatives](#)
- **Boston Public Schools**, [Green and Healthy School Initiatives](#)
- **Cities** participating in the [Children to Nature Program](#) (e.g. San Francisco)

Research

For a comprehensive review of the literature, please visit the Children and Nature Network's [website](#). Here are highlights from the literature.

✓ Physical health and development

- Activity in nature supports overall physical development with an increase in stamina: running, climbing, digging, playing, with the engagement of fine and gross motor movement, and skill development.
- Time in nature strengthens the immune system and reduces allergies.
- There is a positive relationship between outdoor activity and a reduction of obesity.
- Nature activity invites a range of movement that supports brain development.

✓ Wellbeing, emotional health, and addressing trauma

- A positive correlation exists between experiences in nature and anxiety, stress, and depression relief.
- Time in nature supports a healthy nervous system.
- Nature cultivates emotional resilience.
- Experiencing nature has a protective function: offsetting the impact of an adverse childhood.
- Ecotherapy, or the practice of being in nature to promote health, has a positive impact on children in a post-COVID-19 environment.
- Increasingly, time in nature is being prescribed as a treatment for mental health.

✓ Environmental awareness and ecological stewardship

- Time in nature cultivates connections as a basis for environmental stewardship.
- Nature learning supports nature literacy and confidence in the natural world.
- Positive experiences with nature address and reduce children's anxiety about climate change.
- Nature connections foster environmental identity in Indigenous children.
- Nature experiences increase children's feelings of agency and ability to take action and to be stewards of their environment.

✓ Development of social and cooperative skills

- Nature exploration expands activity and supports the development of confidence, curiosity, independence, and empathy.
- There are many invitations for cooperative play, projects, and teamwork.
- Nature activity supports open-ended, self-directed, or group play that supports the development of social skills through interaction and collaboration.
- Time in nature supports emotional regulation and co-regulation.

✓ Academic learning

- The wide range of experiences helps prepare young children for academic success.
- Nature experience supports visual-motor and sensory integration, essential foundations for academic success.
- Nature elements provide multiple learning and discovery opportunities, strengthening skills and academic success.
- An open-ended environment supports the development of decision-making and executive functioning.

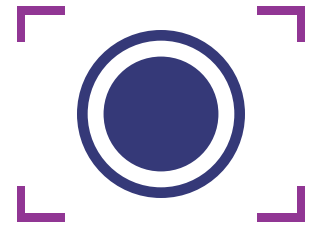
✓ Neurodiversity

- Nature experience can be constructed to support individuals on the autism spectrum and provide therapeutic benefit. Examples include access to [sensory gardens](#) and opportunities for social development.
- Time in nature improves the ability to focus, important for children with attention deficit disorder and hyperactivity.

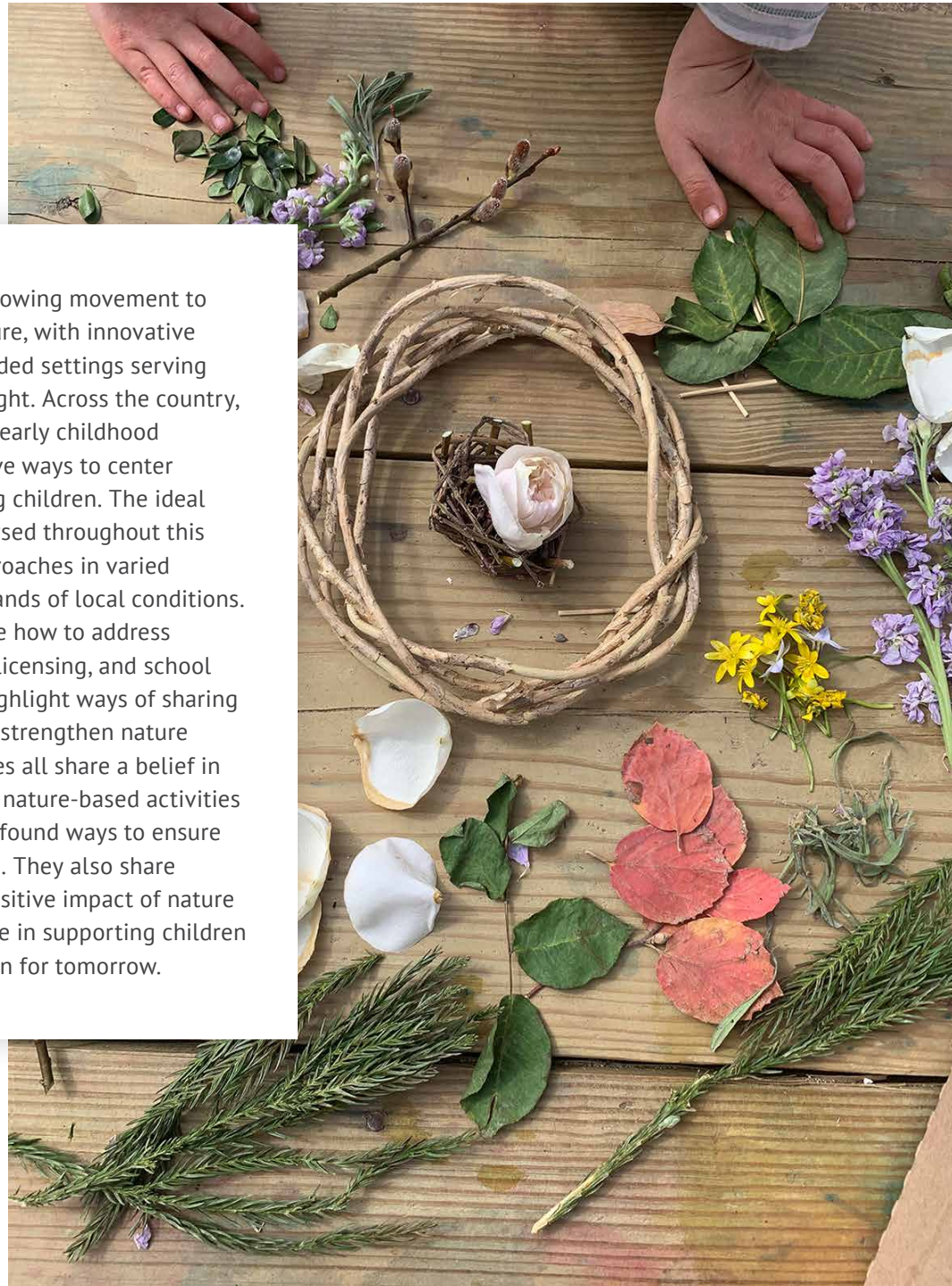
✓ Diversity, equity, and inclusion

- Studies have demonstrated the uneven distribution of green spaces.
- The development of green schoolyards provides a path to greater equity.
- The intersection of environmental justice and demographic factors in access to green space should be explored.

Ideal Learning Snapshots: Nature Learning in Practice



There is a remarkable and growing movement to reconnect children with nature, with innovative work in diverse, publicly-funded settings serving children from birth to age eight. Across the country, ideal learning providers and early childhood educators have found creative ways to center nature experiences for young children. The ideal learning Snapshots interspersed throughout this report illustrate diverse approaches in varied contexts that meet the demands of local conditions. These programs demonstrate how to address constraints such as climate, licensing, and school district requirements, and highlight ways of sharing knowledge and resources to strengthen nature practice. The spotlighted sites all share a belief in the value and importance of nature-based activities for young children and have found ways to ensure this is core to their programs. They also share evidence of the powerful, positive impact of nature in children's lives, and its role in supporting children today and laying a foundation for tomorrow.



Courtesy of Waldorf Early Childhood Association of North America



Healthy bodies, healthy minds, healthy hearts: trauma-informed and therapeutic education using Indigenous wisdom and nature/movement.

Early childhood educators can learn from the traditions, beliefs, and practices of Indigenous communities in fostering connections to nature. Across a wide range of peoples and locations, Indigenous communities value and practice unity with the land, respect, and reciprocal relationships. These long-held values and practices have been challenged by displacement and dispossession, increasingly recognized in land acknowledgment statements, but remain deep sources of knowledge and strength today. A connection to nature and honoring of the land is demonstrated and passed on to young children in Indigenous child care and early education centers, along with Indigenous languages and practices which are at risk of disappearing without dedicated awareness and support.

Montessori American Indian Child Care Center

Established in 2014, the [Montessori American Indian Childcare Center](#) in St. Paul, Minnesota utilizes an indigenized, culturally unique, and holistic approach to lifelong learning through a nature-based curriculum. Their goal is to help children blossom into independent, conscientious, and well-rounded individuals by acknowledging that they need to be protected, respected, and cherished. Serving American Indian families with children ages 3 to 6, the staff cultivates children's natural desire to learn by blending the Montessori method of education with the values of the American Indian community (see a video of the program [here](#)). The preschool also provides opportunities for children to study the Ojibwe and Dakota/Lakota languages, building a strong cultural self-awareness through the honoring of Indigenous values.



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A child with a strong foundation in who they are as a native child can and will continue to blossom and have the skill sets to overcome some of the injustices we still face in society today.

– Janice LaFloe, School Founder

As they are urban programs without tribal lands, they have to work to bring intention into nature connections. They see the teachers and staff as part of an extended family with the children and strive to rebuild and reconnect children with their Indigenous roots. Their approach to nature-based learning embeds language and Indigenous culture into daily learning experiences; planting the seeds for a solid foundation to be well grounded in who they are as Indigenous children and taking pride in their heritage and culture. Staff utilizes traditional storytelling to weave relationships with the natural world. The

children get the opportunity to experience growing and harvesting foods in their garden where they plant the three sisters- corn, squash, and beans- as well as tomatoes, peppers, flowers, and beets. This helps them develop a healthy relationship with food. The children are taught about the deep wisdom in nature and by embedding language and culture in everyday life in the classroom, they practice values that are grounded in the Seven Grandfather Teachings of Love, Respect, Bravery, Truth, Honesty, Humility and Wisdom.



Courtesy of American Indian Montessori Child Care Center

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I grew up in a city where I wasn't in touch with my culture and I want my kids to be part of that. I'm happy that my kids get to experience things I didn't. I am grateful for the resources and support they provide for me and my family to continue our culture and learn more about it and even different native languages and traditions besides just mine.

— Parent Testimonial

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The school and teachers are committed to reflecting the community that they serve. They reflect their culture and connection to nature in the artwork all around, pictures, materials, experiences, and environment. This matters to me.

— Parent Testimonial



Courtesy of American Indian Montessori Child Care Center



Branching out: partnerships between programs to expand nature-based practices.

Waldorf schools have a long tradition of including nature as an essential element in children's lives. Students of all ages spend a significant amount of time playing, exploring, and working outdoors. Playgrounds are designed to incorporate natural structures and opportunities for unstructured free play. If local conditions allow, weekly nature walks or hikes expand the child's experience of nature beyond the schoolyard. The emphasis on nature is carried into the classroom through the use of natural materials to the greatest extent possible, open-ended play materials that include objects from nature (e.g., sand, water, logs), and a nature or seasonal table that reflects the season and typically includes plants or flowers.

Historically, these well-established nature practices have been limited to private school settings. More recently, Waldorf education has begun to expand into public education and its approach to nature education is being adapted for a range of settings.

Neighboring Tree Project

[Acorn Waldorf School](#), a private Waldorf early childhood school in Accord, New York, provides a successful model of collaboration and knowledge-sharing about forest Kindergartens through their [Neighboring Tree Project](#) (NTP). The NTP is a grant-funded public-private initiative that supports local school districts and a Head Start program through professional development, mentoring, and modeling of practices to expand nature-based early childhood education in a range of public education settings.

Project staff explain: "Just as trees are linked together by an underground network, communicating with each other in cooperative ways, NTP creates collaborative relationships with early childhood educators in our broader community. Through our mutually beneficial relationships, we come to know our neighbors, learn from other educators, and create a social community of "neighboring trees" in our region who believe that bringing young children into forests and meadows is a fundamental human right."

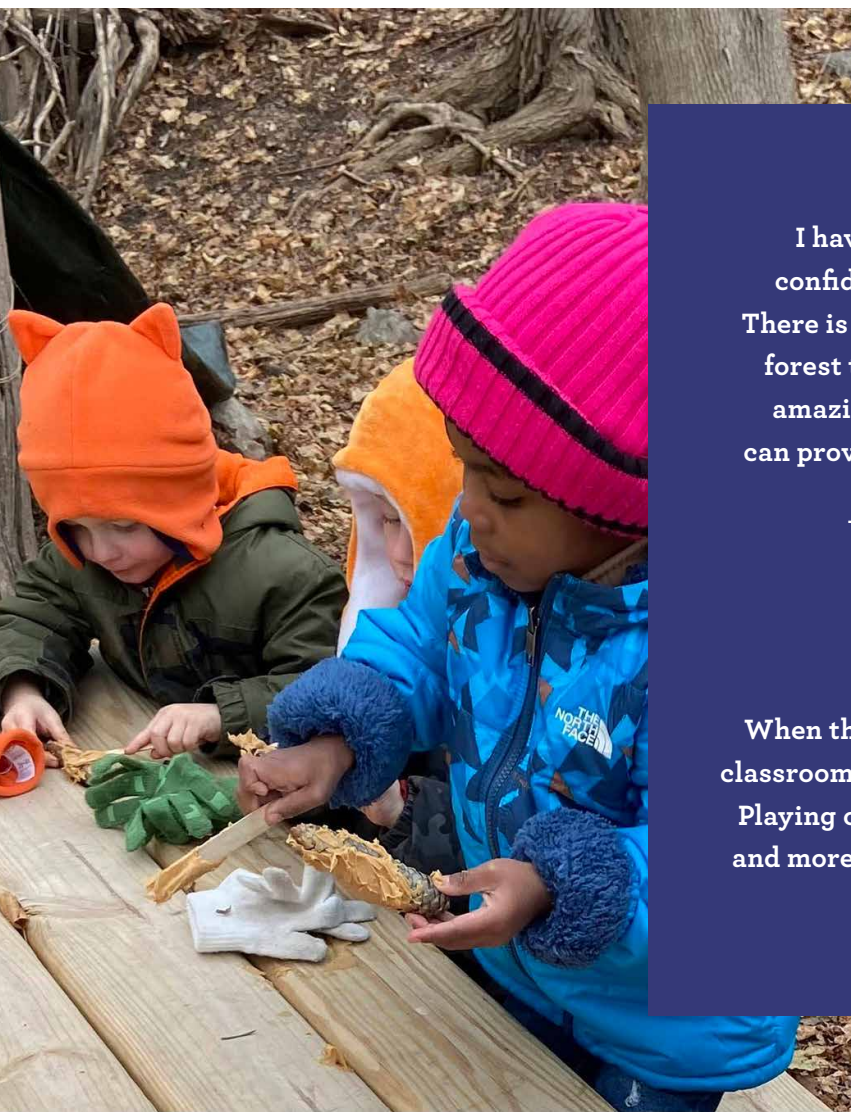
NTP was developed by a team of experienced outdoor early childhood educators who provide training and mentoring to community partners through a year-long plan. Activities include one-on-one mentoring visits to partnering teachers, bi-monthly professional development seminars and workshops, and seasonal visits to Acorn Waldorf to observe their work with nature.

Current partners include Agri-Business Child Development (ABCD), New Paltz, NY, a Migrant and Seasonal Head Start, Early Head Start, and Head Start center; Meagher Pre-K, Kingston, NY, a state-funded universal pre-K site with a dual-language program; and John F. Kennedy (JFK) Elementary School, Kingston, NY, with four Kindergarten classes that now spend one to two periods each week in a city park adjacent to the school building.

In addition to professional development and mentoring, educational partners are supported through assistance with the identification of natural spaces for play, the design of outdoor classrooms

and site-specific equipment, and a nature-based curriculum that includes crafts, circle time, stories, and puppetry. Grant funding ensures that appropriate outdoor clothing and gear is provided for all students and teachers, including rain suits, rain boots, winter snowsuits, snow boots, and waterproof mittens.

Success is evident in reflections from community partners. **Perhaps the most meaningful testimonial of all was offered by Joanna Dorman**, an NTP mentor, who noted that every time she leaves the forest after visiting with a Kindergarten class from JFK Elementary School a student always says: **“This was the best day ever!”** More sample testimonials include:



“

I have witnessed my students become more resilient, confident, creative, and physically stronger individuals. There is a peacefulness and hum of play that exists out in our forest that is difficult to recreate in the classroom. It is an amazing place to be, and I am so grateful that our school can provide this essential piece of childhood to our students.

— Amy Schneider, Universal Pre-K teacher, Meagher Preschool

“

When the children can spend time outdoors and in the forest classroom, they problem-solve and work together cooperatively. Playing outside also helps the children develop their intuition and more calmly communicate their feelings with one another.

— Melissa Hoffstatter, ABCD Director

Courtesy of Neighboring Tree Project



Farm to fork: what we grow, we eat.

The “farm to fork” movement has strong links to the 25-year-old Edible Schoolyard project, pioneered by Alice Waters. Edible education seeks to introduce children to the source of food through school gardens, providing hands-on experiences that connect students to food, nature, and each other. This approach systematically addresses the crises of climate change, public health, and social inequality. At its heart is a dynamic and joyful learning experience for every child. Through gardening, children learn about the cycles of planting, tending, harvesting, and eating. Children are introduced to fresh produce, new tastes, and healthy eating. School or community gardens range in size from large tubs or planters to expansive plots. They often include a community element, engaging children’s families and showcasing crops used within popular ethnic dishes.

Urban Sprouts

[Urban Sprouts](#) in University City, Missouri, is a Reggio Emilia school surrounded by a city. As such, they work to build spaces for nature exploration for children to experience how they are connected to the natural world. By heavily incorporating natural materials inside the classrooms, staff create an enriching environment and bring the outdoors to life. The playground is designed to foster deep nature connections, with natural wood structures and several different garden spaces. These spaces serve as purposeful extensions of the indoor classroom learning environment. One of the garden spaces is dedicated to growing food and involves close involvement with the children who are the stewards of the growing garden alongside the teachers. Practical activities range from preparing and turning the soil, sowing seeds, caring for the growing plants by watering and weeding the garden beds, then literally harvesting the fruits of their labor. They host a harvest celebration and cooking competition, which each classroom participates in and then is shared with families.



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We are grateful to have a space that allows us to explore and learn in a way that connects us to our natural world. Sometimes city life keeps us separate from these experiences, and we feel that it is important for our children to have access to them. We hope that through these connections, our children will have a deeper sense of how we are a part of something larger than ourselves.

– Ellicia Lanier, Founding Executive Director

This past year, they have been deepening connections with their wider community by partnering with farms that provide them with seasonal foods which are used both by the children for cooking projects as well as by the school cook when she prepares food for the children's meals. The children participated in a field trip to the farm where they were able to see how food grows while also enjoying the sensory experience of picking and tasting unusual food to expand their palettes. This inspired them to add a greenhouse to their playground, where they will learn to plant seedlings which will be planted in the garden. With so much nature infused into the curriculum, it is no surprise to see how a love of nature is reflected in the children's artwork.

One barrier they have encountered is that the playground was formerly a parking lot, which has since been covered with dirt and mulch, but the children don't have to dig down far to hit the asphalt. To remedy this, they built planter boxes that house

their garden and allow space for deep roots to grow. The school has used this experience as a relationship-building activity between our school community and families as they are invited to build garden boxes, plant seeds, and accompany their children in building a relationship with nature.

Through working in the garden, the children build a strong relationship with nature and take pride in working together to grow food for their school community. This experience also helps the children develop a love for healthy, nutritious, and wholesome foods. Upcoming projects for the school will be to find space to incorporate composting and acquire more child-size garden tools so every child can participate. Since their garden is maintained by teaching staff, they also recognize a deep learning curve and hope to find a dedicated person with horticultural knowledge and the ability to assist with maintenance and other needs to support their ongoing garden expansion projects.

Courtesy of Urban Sprouts



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I love that our garden promotes healthy eating and children get to experience the growing process from seed to food. It also offers nature experiences, such as the discovery of “cabbage worms”, which became butterflies.

— Sarah Woodard, Pre-K Teacher



Into the back yard: home-based and back yard settings.

Of the nearly 11 million young children with working mothers, 40% receive care through home-based child care, which can range from rural to urban settings.⁵ Home care providers open their homes to young children, nurturing their development and sharing the daily rhythms of life over extended periods. If outdoor space is available, this is usually incorporated into daily routines, providing children with the many benefits of nature activity including free play, gardening, and farm-to-fork activity.

NOVA Academy

Nova Family Child Care Home, in New Haven, Connecticut, is a wonderful example of a home-based child care setting that takes its program into the backyard to provide a range of nature-based learning experiences.

The families of children who attend Dora's NOVA Academy know that coming home with a bit of dirt under their fingernails is a natural part of the day. NOVA's vision and mission include allowing the children to immerse themselves in nature and have a "discovery-driven" learning experience which often includes a great deal of work with soil and water. The goal is to create a love of learning along with a love and appreciation for the world around them. Along with traditional experiences like art, circle time, reading, and blocks, she happily lists "eating" as one of their favorite daily rituals. The children are involved in planting their own food and caring for it while watching it grow from the ground until they can harvest and eat what they have helped grow. Snack and lunch times aren't just daily routines; Dora views these times as vital bonding times with the children in her program, deepening the sense of belonging and community through sharing healthy foods that the children harvest in their backyard. Instead of farm-to-table, they participate in backyard-to-table!



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Everything the children learn is through nature and social-emotional learning based on the child's interest in nature. They learn empathy and love, they learn to be more grateful for the trees, the bees...

– Dora Ramos, Owner and Provider

⁵ <https://nafcc.org/our-work/public-policy-and-advocacy/research-resources/family-child-care-research-data/>

Owner and provider, Dora Ramos, whose over 30 years of experience includes degrees in Early Childhood Education and Social Work, knows that young children learn through relationships with trusted adults. Dora exemplifies this principle through her practice with the children and families in her program. At her core, she believes that the best way for children to process the world around them is with a nurturing adult by their side. Dora is intentional in her approach as a family child care educator in the many ways she builds relationships with the children through nature; always striving to be recognized as an example of innovative early childhood practices. She is affiliated with All Our Kin, which represents family child care on the Ideal Learning Roundtable and aligns with the principles of ideal learning. Their innovative model for training, supporting, and sustaining family child care educators in their homes enhances family options for child care.

An expert at creating connections for families, Dora also partners with the local museum and nature center to expose the children to wildlife and their habitats while they learn how to care for the earth and all of its occupants. She believes that all children are capable of “amazing things” and shows it in her daily work.

NOVA stands for:

N = Nature

Here at NOVA Academy, we believe in involving nature on a day-to-day basis. That includes planting, harvesting, and eating our very own grown greens!

O = Oasis

Rain or shine or flurries, we'll always find ourselves making way for outdoor time! It is essential to connect nature + creativity. We like to refer to ourselves as “Nature’s Oasis.”

V = Valiant

Whether it's playing the piano, painting, jumping on a trampoline, or even creating something new using magnets, we love to encourage children to learn and grow at their own pace.

A = Adventurer

Who doesn't love a fun adventure? Exploration, imagination, and effort are key aspects we strive to achieve with each child here at NOVA. By incorporating weekly rotating activities, we've found this to be quite successful!



Courtesy of NOVA Academy

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Optimal care environments like family child care programs offer children opportunities to learn through ordinary routine tasks that help them learn about the world around them and themselves. For example, some programs like Dora's might use harvesting crops and prepping meals as a learning experience. These experiences not only help children develop a sense of community, love for nature, and belonging but also help them with their cognitive development. Children later tap into these skills as a scaffold for higher order thinking.

— Marina Rodriguez, All Our Kin Mentor Coach



Inch by inch, row by row: sustaining nature-based education within a large urban school district.

Public schools are part of large systems, which in many places are serving increasingly younger children. When considering change, school personnel must navigate multiple regulations and policies related to risk management, insurance, planning and approval processes, regulations, and inspections. Despite this, a national movement is building “green” schoolyards, transforming traditional campuses that were often designed for the education systems of the 1940s and 50s into more natural spaces.⁶

Alice Birney TK-8 Public Waldorf School

[Alice Birney TK-8 School](#), located in Sacramento, California, is deeply committed to including nature in the lives of children. To do so, it has learned to work within the constraints of the local school district to provide a nature-rich environment for all its students. The campus includes a large vegetable garden, chickens, many trees and shrubs, a pollinator path, and ample space for outdoor activities. Plants and trees help mitigate the noise and activity of two busy streets and a nearby airport and also provide needed shade and improve air quality, essential in a city where summer temperatures often exceed 100 degrees.

The T-K-Kindergarten program takes place outdoors as much as possible in a relatively small yard. The yard includes a popular mud kitchen, stumps and logs for balancing and climbing, “Mr. Mountain”, a large dirt pile, for digging and climbing, uneven surfaces to strengthen balance, sand, and water, and a wide variety of flowering plants and succulents. At certain times of the year, the yard includes a cage containing pheasant eggs so the children can witness eggs hatching and chicks emerging and growing.

Principal Mechelle Horning recalls the work it took to create this oasis. The school was relocated to its current site ten years ago. At that time, the campus had been abandoned, an increasingly common sight in many urban school districts. It was “a regular, plain campus”, flat, dry, and neglected. Over time, the school community transformed its space, planting trees and establishing natural, living barriers, landscaping, adding native, water-resistant habitats, and developing the garden area. Each step in this process required approvals from relevant District offices; everything that was added had to go through multi-step processes and inspections. Each proposal was subject to differing opinions on health and safety and the quality of the learning experience. Plans and maps were required, along with details about contractors and plans and anticipated costs for ongoing maintenance. Approvals, if granted, typically came without funding. As a result, the school engaged in fundraising, community work parties, and grant applications, including a successful grant from the US Department of Wildlife and the support of a local Tree Foundation.

⁶<https://www.greenschoolyards.org/>

Nature remains a focus of fundraising efforts, reflecting the core value the school places on its environment. In recent years, pandemic funds supported the further development of outdoor spaces. The nature orientation invites families to engage; the school would not be able to maintain the campus without the help of parents, grandparents, and other family members who help with weeding on weekends, watering in summer, and general campus maintenance.

By design, the Kindergarten children spend the majority of their school day outdoors, including the opening and closing of each day. The school adjusts its schedule on high-heat days to allow students to be outside early in the day when the air is relatively

cool. Nature is also evident inside the classrooms, with many plants, natural materials, a nature table with different items appropriate to the season, large stumps for sitting or standing, branches and other elements for building and playing, and fresh flowers, often picked from the school garden.

When asked why the school had worked so hard to navigate complex procedures to create this environment and why the Kindergarten day was largely outside, Mechelle Horning took a deep breath and began a long list of benefits. She noted that they see the healing power of time in nature, soothing the social-emotional trauma that many children carry, allowing them to go into themselves.

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Direct engagement with nature builds an appreciation and understanding of who we are as human beings. It relates the children to where they live and what is around them. It also lays a strong foundation for understanding sciences - botany, chemistry, and other subjects.

– Mechelle Horning, Principal



Margaret Gillespie, a Kindergarten teacher for many years, observed that today’s children need more and more time outside in nature with the freedom to move. Many activities today encourage our children to sit and be indoors; devices and screens require stillness when you are using them. Children need to move their bodies, experience changes in levels and surfaces, and explore deep sensory needs that can only be experienced through nature and cannot be met on a screen. The teachers saw these trends before the pandemic and they have steadily intensified since then.

Courtesy of Alice Birney TK-8 Public Waldorf School



Sowing seeds of change: community partnerships in playgrounds and gardens.

With growing awareness of the life-long impact of nature experience for all young children, we see increasing numbers of community partnerships to transform playgrounds, provide community gardens, and facilitate educational opportunities that allow young children to engage directly with nature. These efforts extend learning possibilities beyond one classroom or school site to the wider community and often provide expert knowledge, space, and resources. Examples vary widely including a San Diego network that supports nature engagement in the home, San Francisco's Children and Nature project which provide green makeovers to early childhood care spaces, and Boston Public Schools' green and healthy schools project. On a larger scale, they include makeovers of traditional playground or park spaces.

Denver Parks and Recreation and the Denver Museum of Nature

One recent effort aligned with the principles of ideal learning and created to ensure that children have an outdoor play environment that is intentionally designed to facilitate their exploration, independence, and interaction is happening in Denver where the Denver Museum of Nature and Science and Denver Parks and Recreation are working together to [transform City Park](#). Partners agreed that the current space was not inclusive of all ages and ability levels; a place that was natural and playful and could be used in all seasons and by all people was needed. It would be a part of making Denver a “Healthy City.”



Courtesy of Denver Parks and Recreation and the Denver Museum of Nature

The \$7.9 million project will be completed in late 2024 (see the groundbreaking ceremony coverage [here](#)) and will bring things full circle for Allegra “Happy” Haynes, Executive Director of Denver Parks and Recreation, who played in the Box Canyon Waterway area of the park as a child. “Everything I learned was by being outside playing in the dirt”, says Haynes. “It took us all these years to figure out the necessity of a connection to nature; the connection that children figured out intuitively.”



Courtesy of Denver Parks and Recreation and the Denver Museum of Nature



Courtesy of Denver Parks and Recreation and the Denver Museum of Nature

Gathering community input was one of the primary goals for the park renovation, ensuring that there was equal access to feedback, particularly for those community members who do not always have a voice. The design team hosted pop-ups in the park, sent out surveys, and invited families to draw what they thought the park should look like. Thousands of people responded with ideas about water features, slides, and climbing opportunities (see the video highlighting the feedback process [here](#)). According to Haynes, it will be “designed not to feel too structured so that we don’t rob children of the discovery experience.”



Turning the soil: from blacktop to nature, a program in transition.

Even with a clear vision of the need for a renewed and enlivened outdoor playspace, there are barriers that for some become roadblocks to the transformation from blacktop to nature. As they begin to make changes, sites encounter large and small obstacles. These range from local regulations, the need for permits, a lack of understanding in county offices of the reasons for these plans, and a need for staff professional development to provide confidence in working with children and nature. Throughout all of these challenges are basic issues of funding and resources, the time and skills needed for grant applications, and expertise in appropriate planning and design.

Foundation for Early Childhood Education, Head Start

For children who live in a huge city, it can be difficult to have access to all that being outdoors has to offer. There is a lack of growing and living plants and other outdoor life, such as the many insects that children love to observe. At [Foundation for Early Childhood Education](#) (The Foundation) in Los Angeles, California, the staff strive to provide an outdoor space that is as engaging for children as the indoor space by including raised garden beds and a variety of nature-based materials like tree stumps that are used for seating outdoors, mud kitchens, and tree blocks. The children, with their teachers' help, have planted vegetables such as carrots and radishes. In addition to planting, they harvested these vegetables, cut the stems, washed them, and made and tried carrot juice.

The Foundation serves primarily low-income families in partnership with Head Start, Early Head Start, and California's State Preschool Program. Many of their sites are located in neighborhoods that include mostly apartments and businesses which leave very little room for parks and outdoor spaces. The few parks that are scattered throughout the community tend to be dangerous places where parents do not want to take their children. The few "safe" parks have metal and plastic equipment and the few grassy areas are reserved for organized sports. In the LA area, the preschools with lavish outdoor, nature-based environments are mostly in high-income communities where parents can afford to pay generously for their children's preschool program. The largest barrier they have encountered to transforming the playground into a nature-based ideal learning environment has been funding. There are high costs associated with hiring a landscape architect to design the space, a contractor to build the space, and a vendor to provide the materials so they have been making small changes over time to enhance the area.

Courtesy of Foundation for Early Childhood Education, Head Start



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Children are more engaged in activities when they are outdoors.

– Edith, Foundation Teacher

Courtesy of Foundation for Early Childhood Education, Head Start



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Since the onset of the pandemic, our agency has increased its efforts to create and expand our inclusion of nature in the environment. We have purchased equipment and included nature-based materials in the indoor and outdoor environment.

– Jocelyn Tucker, Assistant Director of Education

Planting Seeds: Ideas and Resources for Implementation

Our Snapshots include many ideas for increasing every young child's access to nature and for ways of overcoming the inevitable challenges that will be encountered when digging into nature. They address considerations of budget, climate and weather conditions, partnerships within communities, addressing the needs of differently-abled children, and the essential role of the adult: educator development, training, and support. They also point to structural issues that need to be addressed. This section contains resources for educators to grow their practice and actionable directions for program and policy leaders.

Nature-based learning for every budget

Adding nature-based learning experiences is achievable, high-impact, and can be low-cost. It's easy and inexpensive to bring nature indoors by adding plants and flowers and encouraging children and their families to contribute objects from nature they discover. Nature can also be brought into the classroom through songs, poems, and stories that are chosen to reflect the reality of seasons and local conditions and to bring images of nature to life in children's imaginations. Strategies include simple enhancements like the inclusion of open-ended elements for indoor and outdoor play (e.g. tree stumps for balance and jumping and opportunities for water, sand, or dirt play), planting in pots or containers or establishing a garden, adding bird feeders and plants that attract butterflies, and including open space for climbing, tumbling, running, and jumping. Programs with more resources can consider large-scale projects like redesigning playgrounds and turning blacktops into natural landscapes.

Time outdoors whatever the weather

Practical considerations include accommodations for climate conditions. In Scandinavia, educators joke that "there is no bad weather, only bad clothing." Most children love rain, puddles, and snow, and with appropriate gear, they can explore and learn in cold, snowy, or rainy conditions. Several schools have addressed this potential barrier through grant funding to provide classroom sets of rain gear, snow gear and boots for children and educators. Increasingly, we must also consider the impact of high temperatures on outdoor education. Solutions here include modified daily schedules to prioritize morning play, or the provision of shade and shelter elements. Solutions to mitigate a changing climate have costs, and may present further barriers to equitable access.



Resources: tilling the soil

Many resources exist to support teachers and caregivers with ideas, projects, and evidence to bolster nature-based learning environments for young children.

Examples of resources offering toolkits, curriculum, and how-to guides include:

- [Outdoor Alliance for Kids](#)
- [Natural Start Alliance](#)
- [Children and Nature Network](#)
- [National Oceanic and Atmospheric Administration \(NOAA\)](#)
- [National Wildlife Federation, Early Childhood Health Outdoors](#)

Cross-pollination with community partners and families

Nature-based education lends itself to school and community partnerships, tapping into a steadily growing range of programs and services. Ideal community partners may be able to provide space, equipment, mentoring, and activities. Potential partners include the YMCA, the National League of Cities (Cities Connecting Children to Nature, e.g. the San Francisco Children and Nature Collaborative), Parks and Recreation departments, and universities. Nature-based programs can engage families through community gardens featuring crops enjoyed by cultural communities present in the learning community.

Educator preparation and development

Educator development programs should emphasize outdoor learning approaches, the research that supports them, ways of connecting children and nature with joy and safety, and fostering land and cultural stewardship. Educators who are new to nature-based learning may need additional support. Support includes practical experiences that help build an understanding of the many benefits of nature connections, ideas for curriculum and activities, and appropriate clothing and equipment. The latter can be an equity barrier; the needs of the educator must be appropriately addressed in any program expansion, especially if it includes heading outdoors. Grant funding may help with clothing and equipment.

Courtesy of Alice Birney TK-8 Public Waldorf School



Centering the needs of children with disabilities in nature-based learning environments

When children with disabilities and their families are part of the planning process, the learning environment will support their exploration as part of the learning community. Without careful planning, children with disabilities may encounter disruption or restriction in their participation in nature activities.⁷ Physical access should be considered and accommodated in the design or redesign of outdoor spaces to ensure equity of nature access to all children, including those with physical disabilities. Considerations may include attention to path surfaces, raised beds, varied opportunities for sensory experiences, and modified equipment.

Updating licensing and regulations

Structural and policy factors must also be addressed on the path to more broadly enhancing children's experience of nature. These include addressing outdated licensing requirements and regulations that assume children are cared for indoors and prevent age-appropriate risk-taking. Current regulations around safety and liability can be barriers to engagement with the natural world, especially if they were developed years ago without an understanding of the need for young children to engage in safe risks and open-ended play. Additionally, there is a lack of well-developed early education policies governing outdoor learning in most states. This is an area that is ripe for policy action in order to bring regulations up-to-date with research and the science of child development.

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They're not just playing in nature, they are: learning, creating, sensing, believing, relaxing, exploring, observing, wondering, connecting, discovering, appreciating, understanding, experimenting...

– Penny Whitehouse, Mother Natured Founder

⁷<http://dx.doi.org/10.1007/s10882-016-9517-x>

Conclusion

Compelling evidence indicates that everyone benefits from ideal learning environments in and inspired by the natural world. Nature heals, nature strengthens, and nature calms. Nature also provides an essential range of sensory, physical, and pre-academic experiences; time in nature is time spent learning, developing, and exploring, not just for children but for their educators, families, and communities.

Further, nature connections foster a sense of ecological stewardship, trust, and care that will accompany and strengthen young children as they grow and develop the resilience needed for the 21st century. Importantly, nature experience provides a balance for our fast-paced, uncertain world.

There are many achievable pathways to re-connect children with nature through early childhood care and education programs in any setting, starting with small, inexpensive, yet consequential steps. By taking these steps, and by supporting policy changes that will make them universal, we can enhance the cognitive, social and emotional development of all young children.

Nature experiences have been a birthright for humans across time and cultures; we affirm that they are a right for all children today, and are more important than ever in our rapidly-changing world.



Courtesy of Alice Birney TK-8 Public Waldorf School

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Acknowledgments

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Chrisanne Gayl, Ellen Roche, Nina Walsh, Tobi Adejumo, Toscha Blalock

Ideal Learning Roundtable Advisors

Christina Riley, Christy Merrick, Emily Sharrock, Lisa Roy, Liz Houston, Marianna McCall, Soyoung Park

Our Snapshot educators who so willingly shared their wisdom and experience:

Adam Bienenstock, Allegra “Happy” Haynes, Amy Schneider, Angela Cusicanqui, Carol Jordan, Dora Ramos, Elia Gilbert, Ellicia Lanier, Gamaliel Moses, Jacqueline Altreuter, Janice LaFloe, Joanna Dorman, Jocelyn Tucker, Laura Moreno Perez, Lisa Miccio, Mamie Noble, Margaret Gillespie, Marina Rodriguez, Mechelle Horning, Melissa Hoffstatter, Motria Shuhan, Taylor Foreman

Photography Credits

We would like to thank the snapshot programs for contributing the photos for this brief.

Funding

Thank you to our philanthropic partners, particularly the George B. Storer Foundation, who supported the development of this brief.