



green
schoolyards
FOR HEALTHY
COMMUNITIES

A photograph of four children sitting on the grass, focused on drawing. They are holding various colored pencils and markers. The background is a soft-focus green field. A large, semi-transparent graphic of a flower is overlaid on the right side of the image.

BUILDING A
NATIONAL MOVEMENT
FOR GREEN SCHOOLYARDS
IN EVERY COMMUNITY

FUNDING PROVIDED BY



W.K.
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1

GROUNDS FOR CHANGE

GREEN SCHOOLYARDS FOR ALL CHILDREN

At a time when children are experiencing high rates of stress, depression, obesity, diabetes and other health risks associated with sedentary lifestyles, they are also experiencing a disconnect from the natural world. The effects of this disconnect are particularly acute in densely populated, economically challenged urban neighborhoods where health risks are already high.

In many neighborhoods, the standard play space is a barren asphalt playground or a concrete slab surrounded by chain link fence—an environment that many people would find unsuitable in a kennel. Too many children have no access to quality school grounds. Too many school districts have decreased or eliminated recess and field trips. Nearly half of school administrators report having cut physical education to increase academic time-on-task. Recent research associates long hours of sitting with a raft of health risks, and yet these trends continue despite the urgency of what public health professionals call a “pandemic of inactivity.”

At the same time, another growing body of scientific evidence suggests that the creation of nature-rich urban environments, including schoolyards with natural play spaces and gardens, can help improve physical and mental health, cognitive skills, creativity, and social bonding. New longitudinal studies also suggest that nature-rich schools can help raise standardized test scores. And children in low-income communities appear to benefit proportionally more from access to green space than those in higher-income communities.

Though many policy makers continue to view digital technology as a silver bullet for education, school districts that green their schools can expect a high rate of return on their investment. Schools can, in fact, be pro-tech and pro-nature. When classroom technology is balanced with hands-on active learning outdoors in natural environments, the benefits of both approaches are multiplied. By using more of their senses, by moving their bodies, by experiencing the awe and wonder of nature, tech-savvy children can maximize the abilities and skills that come from both the natural and the virtual worlds.

Opportunities to take students outside into more natural environments can also reduce teacher burnout, according to one study. Natural schoolyards can strengthen the social fabric of the wider community. During the school day, they provide opportunities for children to play and learn in nature; and when these green oases are opened to the public after hours and on weekends, families spend more quality time together, elders enjoy walking paths and sitting peacefully outdoors among neighbors, and children enjoy more active and independent play in safe places.

The children and nature movement will be effective only in a wider context of social, economic and racial justice. It must value the inherent capacities within communities, including existing social networks, local wisdom and inventiveness, and cultural knowledge about the natural world. While not a panacea, the creation of green schoolyards is one way to assure that all children—not just some—receive the gifts of nature so essential to mind, body and spirit.



Richard Louv
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CHILDREN & NATURE NETWORK

GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES

The Children & Nature Network envisions a world in which all children play, learn and grow with nature in their everyday lives.



We fulfill this vision by building networks of organizations and individuals, developing leaders, and fueling scalable strategies for whole-community wellness through contact with the natural world. Two years ago, we took on the question of how to create greater impact in the important connection between health and nature. We collected all of the ideas that our networks had articulated over the previous nine years and created a list of 13 viable strategies, which included engaging pediatricians in park prescriptions, partnering with hospitals, helping health agencies infuse nature into obesity prevention programs, and many other ideas which could be put under the “Health” banner. Given the rising popularity of shared use agreements and co-location of schools and parks to increase physical activity, we added *green schoolyards for whole communities* to the list, and we took a good look at where we thought we could make the most headway for children.

With only a small fraction of public schoolyards in the U.S. having any kind of natural outdoor learning area, we realized that by creating access to green space on schoolyards in every community—the only public lands specifically allocated for use by children—we could have lasting impact on children’s health and well-being, particularly the most vulnerable children. Research convincingly demonstrates that green space is sparser in low-income communities and health risks are higher. We at the Children & Nature Network have committed to building a strategic intervention for low-income communities where the many benefits of the natural environment can mediate stress in children and create whole-community resilience and vitality.

For several decades, pioneers have fueled garden-based education and promoted school-based nature play and learning for children. Community organizations, city governments, and schools have come together on the schoolyard to install, maintain, and financially support community vegetable gardens, nature trails, wildlife sanctuaries, orchards, water conservation systems, wetland boardwalks, and many other forms of green space. These initiatives are often sited on previously barren schoolyards, replacing asphalt with engaging, ecologically diverse learning environments and community parks. These natural spaces are used as outdoor classrooms to enhance learning outcomes and create daily wellness for the children they serve. However, until recently there has been little rigorous science to make the case that green schoolyards affect children’s health and academic performance. Moreover, the green schoolyard movement has been somewhat fragmented and under-resourced, relying on unevenly distributed local partnerships and funding. Green schoolyards remain a good idea that has not yet made it into mainstream school policy or programming.

With the research on green schoolyards mounting, we are seeing significant findings pointing to the stress-reduction, increased focus, academic performance, and now the physical activity that is possible when children engage in these spaces. The rise in interest in shared use of school grounds is beginning to show how the entire community



GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES

benefits both from the social cohesion in families, but also the increase in physical activity that these spaces invite. The mainstream media outlets are picking up on the stories of community and individual transformation when children engage in urban farming or ecological stewardship at school. And yet, there is still a distance to travel to have decision-makers fully understand the multiple benefits of these green school grounds.

One of our biggest challenges is that transforming these spaces into living landscapes is not easy for schools. Asphalt requires little maintenance, no school staff training, and little additional subsequent funding. School grounds with green lawns that are bereft of any biodiversity can be mowed quickly and cheaply. But the cost to children's mental and physical health is great when these barren spaces are the only places children have to play and learn. Green schoolyards, when done well, require strong partnerships, teacher training, and on-going maintenance and engagement by the whole school community. All of this takes commitment, know-how, resources and time, which pose challenges for schools.

So, we have a choice to make. We can let communities figure out how to gather their own funding and expertise to follow this trend of converting schools into safe, rich places for nature contact. Or we can pull together the leaders in the field, expand the network to other relevant sectors, and collectively coordinate funding, policy change, partnership building, training and community engagement to strive for deeper impact with higher rates of success in more communities. We believe that a coordinated effort is the only way to achieve scale and to reach beyond the well-resourced communities into places where children need green schoolyards the most.



Children in Washington D.C. benefit from a district-wide School Garden Program.

GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES

Children & Nature Network envisions nature-rich environments on school grounds in every community where children learn and play and where communities enjoy access to public school grounds.



THE PROJECT

It is with this vision in mind that Children & Nature Network (C&NN) launched the *Green Schoolyards for Healthy Communities* project—a listening tour across the U. S. to engage experts and a wide variety of cross-sector stakeholders to determine how we might marshal resources and grow this good idea into a nationwide movement that includes all of the relevant players from public health, urban planning, medicine, environmental agencies, municipal government, economic development, and many other groups whose purposes could be served with community green space on public school grounds.

For the purposes of this project, the term “green schoolyards” refers specifically to school grounds where natural elements are present and abundant. These might include diverse terrain; natural features such as flowers, trees, edible plants, logs, sticks, boulders, rocks, sand and water; gardens that support wildlife and food growing; natural play structures with loose parts and climbing structures; paths and trails; gathering places and outdoor classrooms; solar and other energy features; rain water catchment; and mechanisms to capture stormwater runoff. We also recognize that these natural elements are often placed in contexts with “traditional” playgrounds with play equipment, courts and fields for sports engagement, all of which we consider part of a green schoolyard that maximizes play value for children. In some places, school grounds go well beyond what we would consider a “yard” but include expansive land and even coordinated usage of nearby public lands.

Through a series of interviews, discussions, focus groups, and convenings we sought to answer these 5 key questions:

- How do we elevate the value of green schoolyards to decision-makers? What opportunities are present to increase awareness—immediate or long-term?
- How can disparate efforts and networks across the U.S. be connected, coordinated and supported to scale the prevalence of green schoolyards?
- What types of resources are needed to support a national green schoolyard movement?
- How are we currently measuring the impact of green schoolyards?
- What strategies could build the capacity, infrastructure, and resources to significantly increase the number of green schoolyards across the U.S.?



GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES

This field investigation included a variety of methodologies, all of which informed one another.

1. SCIENTIFIC LITERATURE REVIEW

A team of researchers conducted a thorough review of the existing literature on several topics related to the intersection of children and nature. The particular lens of green schoolyards was applied in five key areas of research: education, physical health, mental health, design, and impact on low-income communities. That expansive research collection is housed in the Children & Nature Network's Research Center where articles, abstracts and sources can be found in a searchable database: www.childrenandnature.org/learn/research-resources

2. EXPERT ENGAGEMENT, FOCUS GROUPS AND SITE VISITS

In order to gain insights and expertise from those doing the work on the ground in communities, we engaged leaders of target green schoolyard initiatives and organizations in 16 cities across the U.S. When possible, those organizations hosted focus groups and site visits and provided additional opportunities to engage with their local stakeholders in order to gain a broader understanding of their work. In these community focus groups and site visits, we sought to better understand the design, programming, and specific neighborhood contexts of the initiatives. Representatives of the Children & Nature Network visited the following cities:



Chicago	Berkeley
New York City	Houston
Washington D.C.	Atlanta
Dallas/Ft. Worth	Minneapolis/St. Paul
San Francisco	Denver
Santa Cruz	Boulder
Cincinnati	Austin

GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES



Children & Nature Network
2015 Conference



National Green Schoolyard
Summit, 2015

3. KEY INFORMANT INTERVIEWS

We set out to talk to ten key leaders in the field, and, with the cross-sector relevance of this work, we found that there were many more interviews and discussions needed to generate a reliable set of recommendations for a way forward with broad national reach. We engaged over 75 professionals who spanned the following disciplines:

- K-12 public schools
- Early childhood education
- Youth development
- Wildlife & conservation
- Parks & recreation
- School gardens
- Green schools
- Public health
- School health
- Physical education & physical activity
- Health care & pediatrics
- Public policy advocacy
- Urban planning
- Landscape design
- Built environment planning
- Academia

4. ACTION LAB CONVENING

The Children & Nature Network convened over 400 leaders in the children and nature field at the inaugural C&NN International Conference in April 2015 in Austin, Texas. At that event, we conducted a panel presentation on best practices and a 2 ½-hour Action Lab, where 26 professionals engaged in strategic planning for growing a national movement for the future of green schoolyards.

5. NATIONAL GREEN SCHOOLYARD SUMMIT

Healthy Schools Campaign and Openlands, in partnership with Children & Nature Network, hosted a summit in May 2015 in Chicago to galvanize the green schoolyard movement. Cross-sector leaders from 48 organizations across the U.S. spent one and a half days together hearing from experts and generating strategies for expansion of policies, programs, and funding for systematic scaling and replication of green schoolyards.

GREEN SCHOOLYARDS FOR HEALTHY COMMUNITIES

OUTCOMES: A Roadmap for The Movement

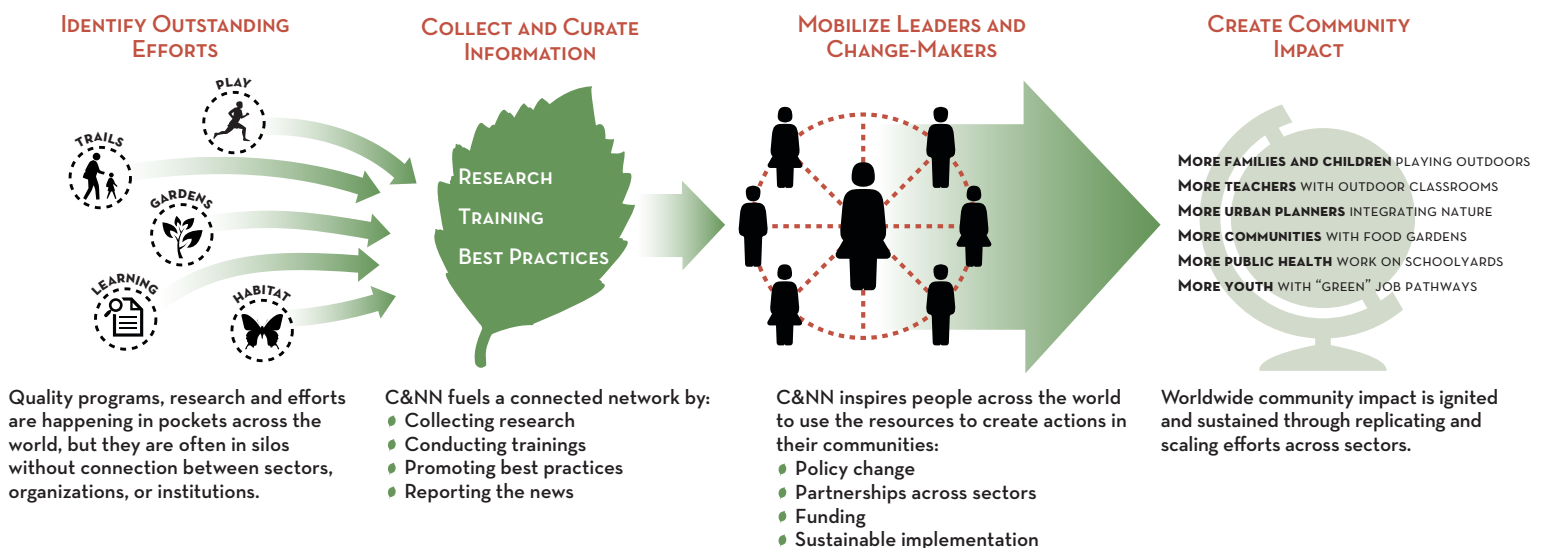
As a result of these multiple methods of engagement, we are presenting here in this document a potential roadmap for the future of this movement. We are condensing rich and complex discussions into a form that we hope will be practical and useful not only to those experts and leaders who are self-selected advocates, but also to a broader audience of change-makers, whether they be parent activists in one community, mayors of large cities, or leaders of national agencies.

This document is not a how-to guide, and it is not a prescription for what we must do to move the needle on creating more green schoolyards. Rather, it is a collection of thinking about what is possible. Section 1 discusses the benefits of green schoolyards, and points to the many possibilities for partnerships and to the need for more research to be collected to help us successfully make a broader case. Section 2 on components for implementation provides a map for evaluating existing and future implementation models and helps us to see how some of the leaders in the field are approaching each component. Section 3 presents a set of recommendations in the form of a Framework for Action, which we hope will be a starting point for a collective national agenda. It is our intention for the components of the report to be practical as separate pieces that can be pulled out and used as needed to address a variety of audiences in the field.

THEORY OF CHANGE

As a result of this field investigation, a theory of change emerged that we are currently using for our work on the C&NN Research Center. We believe that this theory of change is easily applied, as demonstrated here, to the Green Schoolyard Movement to address some of the components of the recommended Framework for Action. This report represents a preliminary phase of *identifying outstanding efforts* and *collecting and curating information* for the field. Our next challenge is to collectively build up the needed resources to mobilize an army of leaders and change-makers across the country for deeper impact in creating green schoolyards in all communities.

GALVANIZING EFFORTS FOR A NATIONAL GREEN SCHOOLYARD MOVEMENT



THE BENEFITS OF GREEN SCHOOLYARDS TO CHILDREN, FAMILIES, & COMMUNITIES

Green schoolyards provide a powerful opportunity to address many community benefits at once. Each community has compelling reasons for developing a green schoolyard—some are interested in creating gardens for growing vegetables or habitat for pollinators; others are interested in outdoor hands-on science instruction to boost academic achievement. Increasingly, we see that communities are creating parks on school grounds, and cities are using this public acreage to manage stormwater. What makes this a strategic intervention in communities is that whichever of these benefits ignites the initial actions, the other benefits follow. Green schoolyards can increase the public value of any investment through this impact multiplier effect. With limited resources available for schools, we should see this aggregated value as a tool to bring new partners and new funding streams to the green schoolyard movement for the benefit of children, families and whole communities.

In this section of the report, the Children & Nature Network offers summaries of the most recent research on a subset of benefits—those that we feel most directly affect vulnerable children: academic achievement, physical activity, mental health, social-emotional skills, and beneficial play.



GREEN SCHOOLYARDS IMPROVE ACADEMIC OUTCOMES

Green schoolyards promote academic achievement through hands-on, experiential learning opportunities that can be offered across a wide array of disciplines.



CREATING AN INTEGRATED CONTEXT FOR LEARNING

Hands-on, constructivist, experiential learning opportunities in green schoolyards provide for integrated learning across the curriculum in subjects such as language arts, writing, social studies, art, math, science, and physical education.



Reduced disciplinary & behavior management problems

Enhanced engagement with learning

Greater pride in academic accomplishments



GARDEN-BASED LEARNING IMPROVES

grades, knowledge, attitudes & behaviors at the elementary, middle, and high school levels. *Williams & Dixon, 2013*

GRADES



85%

ATTITUDES + BEHAVIOR



91%

KNOWLEDGE

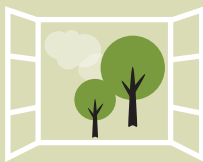


83%

GPAS

In one study, **92% OF CLASSROOMS** that integrated the environment had higher standardized test scores, GPAS, and enthusiasm for learning.

Lieberman & Hoody, 1998



FOSTERING POSITIVE EDUCATIONAL OUTCOMES

Natural views of the outdoors from the school building predict a variety of academic achievement outcomes.

HIGH SCHOOL STUDENTS WITH
**VIEWS OF TREES
& BUSHES**



FROM THEIR CAFETERIA WINDOWS HAD

Matsuoka, 2010



HIGHER
standardized
test scores



HIGHER
graduation
rates



HIGHER
% of students planning
to attend a 4-yr college

SUPPORTING RESEARCH

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GREEN SCHOOLYARDS INCREASE PHYSICAL ACTIVITY

Green schoolyards can promote physical activity by providing more diverse types of play and engaging children of all fitness levels and genders in active play.



PROMOTING DIVERSE PLAY

MODERATE TO VIGOROUS PHYSICAL ACTIVITY

Children engage in a wide array of physically active play such as running, skipping, jumping, lifting, and climbing.

SCHOOL GARDENING can engage students in physical activity, nutrition education, and sampling fruits & vegetables.

In one study, students who attended schools with access to natural areas spent more than **10 times the number of minutes in moderate to vigorous physical activity** outdoors than children who attended a school with little access to natural areas. *Pagels, et al., 2014*



ENGAGING CHILDREN OF ALL FITNESS LEVELS AND GENDERS IN ACTIVE PLAY

LIGHT TO MODERATE PHYSICAL ACTIVITY

Green schoolyards are particularly welcoming to children who are less physically fit and who might not join in more demanding physical activity such as sports.

90%
SAID

GREENED SCHOOLYARDS increase accessibility by appealing to a wider variety of student play styles and interests.

71%
SAID

GREENED SCHOOLYARDS provide a venue for kids to move that was different from playing fields and playground equipment.

Dymnt & Bell, 2007

GREEN SCHOOLYARDS MAY CONTRIBUTE TO **GIRLS' PHYSICAL ACTIVITY** ❀❀❀❀

by providing opportunities for preferred activities and moderating the trend toward decreased physical activity in later childhood and adolescence.

Pagels, et al., 2014



SUPPORTING RESEARCH

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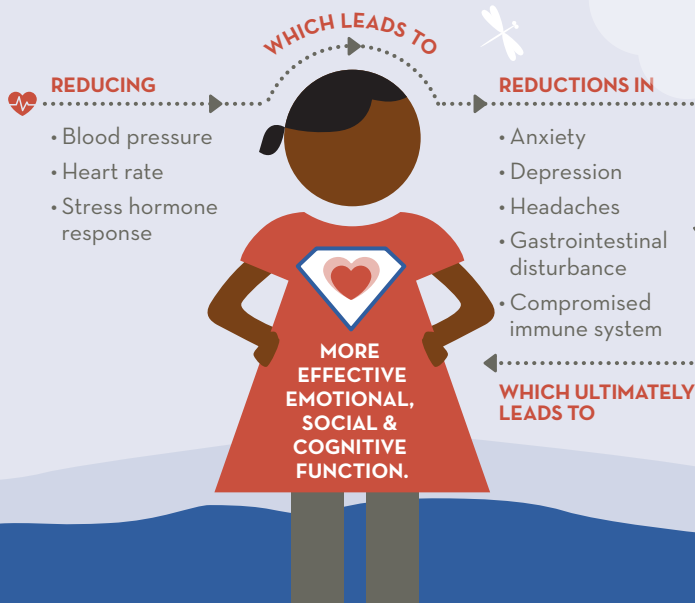
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GREEN SCHOOLYARDS PROVIDE MENTAL HEALTH BENEFITS

Research has convincingly demonstrated the benefits of natural spaces to mental health. Greening our schoolyards helps reduce stress, focus student attention and create a calming effect.

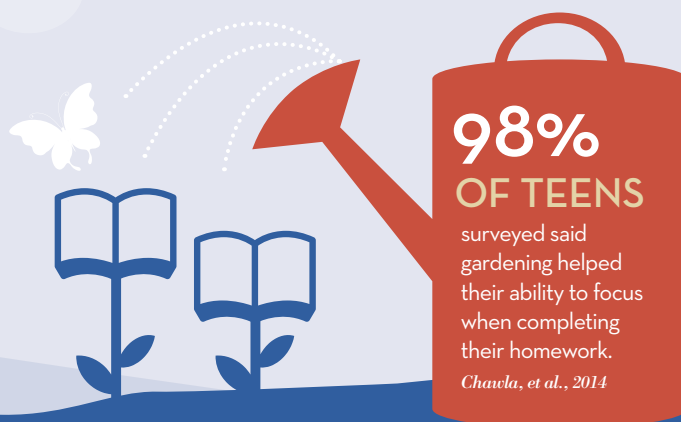
REDUCING STRESS

Playing in natural environments busts stress by:



FOCUSING ATTENTION

When learning and playing outdoors on green schoolyards, students are better able to focus their attention and regulate their behavior. They are better able to slow down and observe details.



CREATING A CALMING EFFECT

Students demonstrate fewer episodes of distress and agitation in response to stress or frustration and more calm behavior when playing in natural areas.



ENHANCING SOCIAL & EMOTIONAL LEARNING

RESPECT & COOPERATION

Facilitates respect and cooperation among students and between students and teachers

SUCCESS

Provides opportunities for success for the less academically inclined

EXECUTIVE SKILLS

Develops executive skills to help plan, implement, assess and cooperate with others

COMPETENCE

Enhances students' sense of competence



SUPPORTING RESEARCH

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GREEN SCHOOLYARDS PROMOTE BENEFICIAL PLAY

Pathways to new destinations, enclosed spaces, expansive sand areas with access to water, places to build, and abundant loose parts are some of the elements that promote specific types of play or sustained engagement in certain play activities.

ENCOURAGING FREE PLAY

Green schoolyards encourage free play, as opposed to play activities structured by adults, which is very important for healthy development throughout childhood. When children direct their own play, they express their creativity. Free play in social groups offers the opportunity to practice planning and organizing, communication, leadership, problem solving, cooperation, and conflict management.



WHEN GIVEN A CHOICE,
PRESCHOOL & ELEMENTARY KIDS
**CONGREGATE MORE
IN NATURAL AREAS**
THAN ON TRADITIONAL PLAY
EQUIPMENT OR BLACKTOP.

Chawla, et al., 2014

RANGE OF TYPES OF PLAY

DRAMATIC PLAY

Loose parts such as sticks, stones, acorns & pinecones lead to play that engages the imagination.

EXPLORATORY PLAY

More wild areas of green schoolyards encourages children to venture out and explore.

SOLITARY PLAY

Areas under bushes or other nooks allow children to engage in alone time and contemplation.

CONSTRUCTIVE PLAY

Building things out of natural materials helps children use hands-on skills.

LOCOMOTOR PLAY

Large natural items such as logs and rocks can be carried. Looping paths allow running, chasing and biking.

MEETING THE PLAY NEEDS OF KIDS OF ALL AGES

YOUNG CHILDREN

Sensory-based play like splashing, digging and smashing allows for investigating and manipulating loose parts.



PRESCHOOL

Dramatic play is facilitated by loose parts and natural and manufactured props.

ELEMENTARY

Play becomes more sophisticated, requiring higher-level cognitive and social skills.

MIDDLE & HIGH SCHOOL

Outdoor games and sports require a different outdoor environment, one with larger expanses of open space and fields.



SUPPORTING RESEARCH

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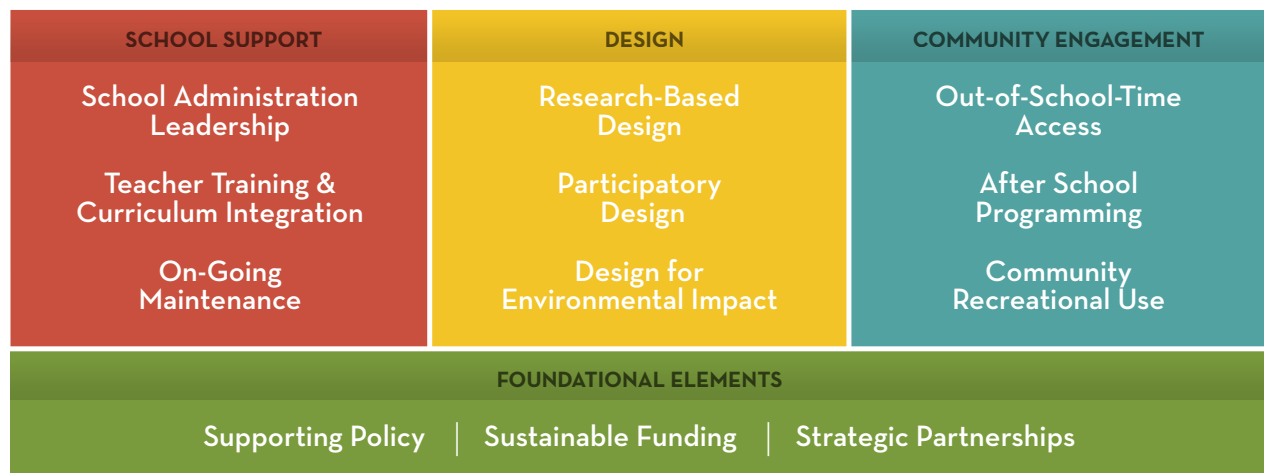
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THE COMPONENTS FOR SUCCESSFUL IMPLEMENTATION OF GREEN SCHOOLYARDS

Communities implement green schoolyards in diverse ways, making them uniquely responsive to the resources and desires of the people they serve. The diagram below represents the ways that initiatives across the U.S. are putting various goals and elements together to create successful models, yet no one initiative has all components in place. For example, those initiatives which are strongly focused on providing an outdoor classroom for academic achievement often have strong administration support and teacher training, yet may have little out-of-school time access. Others focused on shared use of the school grounds by the community may have strong funding, policy and maintenance, but little focus on curriculum integration. By outlining these components we do not intend to evaluate program success by these criteria, but we do intend to demonstrate that these are the elements which are possible to create successful green schoolyards that are sustainable over time.

green schoolyards

COMPONENTS FOR SUCCESSFUL IMPLEMENTATION



THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

Sharing best practices for green schoolyards is complex for two primary reasons: first, the mere definition of “what’s working” may vary by community and by each initiative’s goals. For example, when a city water department is successfully managing its stormwater on the schoolyard and children are gaining environmental literacy as a by-product, that could be a homerun for that initiative; whereas another initiative might see community physical activity spike with the implementation of a school park—again, a huge success. Various practices are in place that make each successful, and the components of the implementation model that are put in place will drive outcomes. Second, sharing the “best practices” for green schoolyards poses challenges because evaluation of green schoolyard initiatives is sorely lacking in both depth and breadth, making it almost impossible to base future decisions on previous research. If we want to build initiatives that are sustained and supported in the long-term, we just don’t have a strong set of data to determine which components work best over others. We do have emerging research that demonstrates some of the benefits of green schoolyards to children, and while there is also some research on outcomes for specific design elements, the exact components of green schoolyard initiatives that make these environments work over time needs more rigorous research and program evaluation.

In our investigation of the green schoolyard field, we discovered a variety of models for implementing green schoolyards that are both responsive to community needs and demonstrate positive outcomes for children. Throughout this document we will refer to these as *promising practices*. Existing initiatives fell into three types of models:

1. **SCHOOL PARKS** where there is a significant transformation of the school grounds with a stipulation that the community will have access to the space during non-school hours
2. **OUTDOOR CLASSROOMS** where the focus is on learning across the curriculum during school hours
3. **ECOSYSTEM SERVICES** where issues such as excess stormwater, heat islands, and poor air quality are mitigated by green infrastructure and urban greening

In this section of the report, we will map some of the strengths of these initiatives onto the various components of a green schoolyard to demonstrate some possibilities for moving forward in each of these areas.

FOUNDATIONAL ELEMENTS: *Supporting Policy, Sustainable Funding & Strategic Partnerships*

There are green schoolyards sprinkled across the U.S., and they are implemented in a wide variety of ways. When policy is not in place to support them, these rich sites for learning and play for the community are at risk for failure. Without policy to support them, they may have unstable funding sources, they may get off the ground in smaller increments and lack the momentum or infrastructure to sustain support over time. Policy can make a world of difference in fueling the funding that enables the people in the community to create these spaces. Policy that is currently in place for green schoolyards is found mostly at the city or school district level and in a few instances at the state level.

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

CITY AND SCHOOL DISTRICT SUPPORT

Local bonds have shown to be opportunities to achieve scale in green schoolyards across a city. **SAN FRANCISCO UNIFIED SCHOOL DISTRICT** passed three separate bonds in 2003, 2006 and 2011 that included funding specifically for green schoolyards across the district. Nearly \$15 million was secured to implement public green schoolyards, and as a result, 54 previously asphalt or otherwise barren spaces have been transformed into living landscapes to enhance children's well-being, with many more slated for implementation in the coming years. A "greening department" was established in the SFUSD School Bond office, and schools awarded the funds were allocated \$150,000 for a one-year master planning process and implementation of the site. However there were no funds allocated for maintenance, so schools and their communities remain responsible for sustaining that investment, which points to a gap that some believe creates disparities in the usage of these schoolyards for the full benefit of all children. This rich context of new schoolyards provides the demand for the **EDUCATION OUTSIDE** program which provides support to schools to enhance maintenance and learning opportunities, which will be discussed in the next section.

Similarly, **DENVER PUBLIC SCHOOLS** passed two bonds that allocated a total of \$45 million for playground transformation and fueled the work of Learning Landscapes. The focus of this initiative was on providing rich opportunities for children to increase diversity of play in environments designed to increase physical activity and physical competencies. As a result of these bonds, Learning Landscapes has transformed 96 elementary playgrounds into areas that provide opportunities for community engagement through shared use of the school grounds as community parks and play areas. This approach to leverage local partnerships and leadership to pass local bonds provides us a strong model for achieving large-scale school ground transformation that includes green space available to the whole community.



Children across Denver received Learning Landscapes after two bonds passed to transform school playgrounds.

CHICAGO PUBLIC SCHOOLS (CPS) passed a new recess policy that included funding for the district to create higher quality play environments for children. Around that time, the City of Chicago was looking for ways to control its stormwater through green infrastructure. **HEALTHY SCHOOLS CAMPAIGN** and **OPENLANDS** initiated discussions among the school and water management agencies, which ignited the **SPACE TO GROW** initiative. The initiative facilitates the school district/city partnership and provides additional expertise and coordination to implement school ground transformations that include new play areas, outdoor classrooms, natural plantings, school gardens, and management of rain water and excess stormwater. Each year, six schools are slated to receive \$1.5 million each for school ground implementation from three sources: 1) Chicago Public Schools, 2) the Chicago

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

Department of Water Management and the Metropolitan Water Reclamation District of Greater Chicago, and 3) the Space to Grow partnership between Openlands and Healthy Schools Campaign. This Space to Grow partnership enables the school district and the city to collaborate and pool its resources to create true transformation not only of the school grounds, but the whole community through increased access to recreation and park space. Space to Grow connects the needs of the neighborhood, the city and the schools with multi-year support and implementation expertise. Both Openlands and Healthy Schools Campaign serve vital roles in facilitating the multiple partners involved in the Space to Grow initiative, making it a strong model for schoolyard green infrastructure replication in other communities.

STATE CONSERVATION AND NATURAL RESOURCE FUNDS

Statewide conservation funds offer some opportunity to implement green space and nature contact on the schoolyard. As part of the statewide lottery funding in Colorado, **GREAT OUTDOORS COLORADO** (GOCO) fuels conservation efforts across the state.

In an effort to address the growing disconnect between children and nature in valuing and stewarding these public lands, GOCO began the School Play Yard Initiative, and in its first three years it has constructed 30 new green schoolyards. The Play Yard Initiative offers competitive grants of approximately \$100,000 to city/school partnerships to design and build green schoolyards that include opportunities for nature play and learning. While it may not be easily applicable to apply state lottery funding in other locations, this initiative serves as an important model for applying conservation-based policy and funding to capital projects on school grounds, where dollars had been previously designated for other public lands such as state and municipal parks.

Conservation and natural resource departments within state agencies can also be activated to apply their outreach and education on school grounds. With the passing of the Minnesota School Forest Law in 1949, public education institutions in Minnesota can establish and maintain parcels of land for community services and educational purposes. Run through the Minnesota Department of Natural Resources (DNR), the **MINNESOTA SCHOOL FOREST PROGRAM** encourages schools to co-manage their public school land with the DNR for the full educational benefit of the children. School Forests across Minnesota range in size from one to 300 acres in urban, suburban, and rural communities. While this kind of acreage may not be available in urban centers, the concept of co-management of land of any size to instill the conservation ethic in young people is taking hold in other states beyond Minnesota. The Minnesota DNR provides ongoing training and curriculum resources along with valuable expertise as children, community members and professionals work alongside one another to install natural areas such as native prairies and trail systems. These trail systems are used year-round by the physical education teachers for hiking and snow-shoeing, and teachers across the curriculum use the spaces for learning. Families and the neighboring community engage in the projects on the school grounds and enjoy access for recreation and stewardship projects with the children.



PHOTO CREDIT Openlands

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES



Real School Gardens “Big Dig”
Community Event

.....
“We want to be a partner with Real School Gardens in every sense of the word—beyond the check. We love to have opportunities to engage our employees in the community. And the garden addresses so many health issues, including physical activity.”

Dr. Catherine Oliveros
Blue Cross Blue Shield of Texas

DIVERSE FUNDING SOURCES

While institutional funding sources driven by local and state policy can help build a foundation for a successful program, there are some initiatives that over time have built diverse funding streams that have shown sustainability and growth of the programs over several decades’ time. **REAL SCHOOL GARDENS** began in Fort Worth, Texas ten years ago as an organization focused on providing outdoor education instruction through garden-based learning and has grown to 98 schools in Texas and the D.C. area. In Texas the organization is growing by approximately 10% each year and is supported by a unique blend of corporate, foundation and school support enhanced by some earned income for trainings provided to schools. Fulltime staff is responsible for corporate relationships, which comprises 50% of the funding. Real School Gardens has been able

to convince corporations like Wells Fargo, Bank of America, Blue Cross Blue Shield of Texas and others that their corporate missions for serving the community are not only met but multiplied through the variety of benefits that garden-based education offers to children, families and entire communities.

Similarly, the Houston **SPARK PARK** initiative, through a diverse and steadily growing funding stream, has been able to grow into one of Houston’s showcase approaches to addressing green space disparity. The initiative was started in 1983

in response to a report led by the mayor’s office which stated that to compete with other cities, Houston would need 5,000 more acres of park land. Since then, Spark has built over 200 parks with a focus on providing more equity in access to recreation and green space throughout the city. Funding is allocated through a competitive process to implement play environments on school grounds with a clear stipulation for access to the space as a community park during non-school hours. Over the years, Spark has developed strong and stable sources of funding, including significant support from Community Development Block Grants combined with Harris County funds, foundation support, several corporate and non-profit partnerships, and school district contributions. Long-standing relationships between Spark and its diverse set of funders have made the program sustainable and ensured its continued growth.

Spark Park Outdoor Classroom,
Houston

.....
“We believe this funding model can be replicated, but there would be different players, different partners, and different systems in place to make it successful in other communities.”

Kathleen Ownby
Spark Park

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

SCHOOL SUPPORT: *School Administration Support, Teacher Professional Development & Curriculum Integration*

If school grounds are to be used as outdoor classrooms for learning, it is ultimately those teaching the children who are going to make that happen and who will determine the quality, frequency, and long-term impact of that learning. There are several variations of support for teachers in the outdoor classroom that can be condensed into two models that are used separately and, in some instances, in tandem:

1. Providing teachers with hands-on training to build their own proficiencies in teaching outdoors with the expectation that they will be conducting outdoor learning independently at a future date; and
2. Organizing a system of support so that there is an outdoor education specialist or a school garden coordinator who prepares and delivers the instruction directly to the children.

BUILDING PROFICIENCY IN TEACHERS

REAL SCHOOL GARDENS (RSG) exemplifies this approach with their 3-year commitment to training teachers. They initially offer whole-school training, then work with a smaller cohort of teachers that involves an RSG on-site co-teacher who demonstrates methods for teaching outdoors and supports the teachers in meeting academic standards for each grade level in the outdoor classroom. The teachers build confidence and proficiency in order to teach on their own without the additional RSG support, and yet they do offer on-going support and training through their “Evergreen” program to ensure that teachers always have access to continuing education.

Additional initiatives across the country provide on-site and online teacher trainings to continue to offer professional development to teachers. Recipe for Success in Houston has long provided hands-on training to teachers on using the gardens for nutrition education and cooking classes. They have now created a training series meant to scale up with an online training video series where teacher participants must view and exhibit proficiency before unlocking new services within the program. National Wildlife Federation has a powerful model where they have partnered with Austin Independent School District to create a demonstration wildlife garden site at the central administration science education center. Teachers from the district come to the site and use the outdoor and indoor classroom space for intensive and on-going training to support their own proficiency to teach on their respective campuses. **LIFE LAB** in Santa Cruz has been recognized as the foremost provider nationwide of training for specifically implementing school gardens and garden-based outdoor learning. The team there offers a suite of professional development to build teacher proficiency, including workshops at their garden classroom in Santa Cruz, educator workshops at specific sites, school garden consulting, and a variety of webinars.

Real School Gardens teachers are trained over 3 years to teach independently in the outdoor classroom.



THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES



DC Greens provides support and coordination for the OSSE School Garden Program.

“The Healthy Schools Act of 2010 was a game changer. It ended up being a connector for all of us who had been doing school gardens for years.”

Sarah Holway Bernardi
DC Greens

PROVIDING DESIGNATED OUTDOOR LEARNING STAFF

With support stemming from the Healthy Schools Act in 2010, the **DISTRICT OF COLUMBIA OFFICE OF THE STATE SUPERINTENDENT OF EDUCATION (OSSE)** established a school garden program that offers a competitive grant process for schools to receive school garden funding. Schools receive up to \$15,000 of support for three consecutive years to supplement the many services provided to the schools by local partnering organizations such as **DC GREENS**. One important stipulation is that 80% of the funding provided must support a school garden coordinator. This coordinator position is key to maintaining the gardens, preparing lessons, and providing quality instruction to the students. They often work at more than one campus, providing daily instruction to the children in D.C. schools.

EDUCATION OUTSIDE in San Francisco provides school support through a Corps of young people who receive specialized training to teach all of the children in a school at least once per week. These on-site teachers are seen as essential to facilitating a high level of usage in the previously discussed San Francisco Unified School District’s green schoolyard implementations across the city.

MAINTENANCE TRAINING

Anyone who has tried to maintain a school garden or outdoor living landscape on a schoolyard knows that success can hinge on the full engagement of the school custodial staff and the facilities maintenance department. There are plenty of stories of grounds workers mowing down native habitat gardens, irrigation systems that don’t get fixed, and teachers whose work orders get placed on the bottom of the pile. Green schoolyards take special investment, professional development, and full engagement of those who steward the school facilities. When trees and plants are placed where there was once concrete, the care and maintenance changes drastically, and it’s imperative to build a new system of support for maintaining this part of the school.

While this is generally a weakness in the field, there are some who are approaching it systematically. **TRUST FOR PUBLIC LAND (TPL)** has developed special training for the maintenance departments and has secured additional funding for the additional hours it takes to maintain the transformed TPL schoolyards. Space to Grow includes the school custodial staff in all aspects of planning, design and implementation, which results in pride and ownership of the playground spaces. One benefit to the school garden coordinator and the outdoor education specialist model discussed above is that this person does take ownership over the spaces and can spend time facilitating and building relationships with the maintenance and custodial staff on behalf of the teachers.

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

DESIGN: Research-Based Design, Participatory Design and Design for Environmental Impact

When we think about designing green spaces on school grounds, the real driver is what outcomes we're seeking. All of the benefits of green schoolyards (see page 8) correlate to special design features which enhance and support them. For example, vegetable gardens directly support nutrition education, and when used in conjunction with gardens that support wildlife, you have a rich opportunity for pollinator support, and scientific field investigation opportunities begin to multiply. Linear pathways and trails enhance physical activity not only by children, but also by adult school staff and families. There is research that supports green schoolyard design that allows for high play and learning value for children, and when beginning design processes, it is essential to engage expertise that is steeped in that design research.

There is a growing trend to view the land on schoolyards as not only an asset to the children who attend the school but also as a public land asset for urban greening that serves community purposes beyond recreation. For many years, land restoration design on schoolyards has included a focus on wildlife habitat. Schoolyards are often part of city-wide wildlife corridors or small-scale ecosystems which use the attraction of wildlife such as birds and pollinators as educational and stewardship opportunities. Extending these public values even further is the

growing trend in viewing school district public lands as rich sites for implementing green infrastructure for stormwater management. As more and more cities are facing consent decrees from the federal Environmental Protection Agency, we can expect to see city/school partnerships and specific design elements that can be addressed successfully through providing green infrastructure.

The Wilson Elementary "Wilson Wonderground" campaign engaged the school, the parents, and the neighboring community in raising additional funds to support its Spark Park.

The design of most schoolyards is driven less by research and additional public values, and more by communities coming to the table with ideas, assets and expertise. When asphalt or monoculture grass playgrounds go into place, there is little input necessary by the community, which is certainly a missed opportunity for a strong school/community relationship. Green schoolyards need communities every step of the way. To transform a schoolyard into a place that is a community asset, the entire school community must be engaged, including local residents, families, school staff, partnering organizations, funders, and the children and youth themselves.

This participatory design process takes on different forms, with the most common being the committee approach where representatives from diverse stakeholder groups come together to coordinate the effort.

SPARK PARK in Houston matches each school's committee with an architect who then designs directly to the committee's articulated



THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES

goals and ideas for what the park should include. Because schools in the Spark program must raise some of the funds, the entire school can become involved through their fundraising campaign efforts.

As **LEARNING LANDSCAPES** transformed schoolyards across Denver, the relationship between design of play environments and children’s well-being was central to the implementation of each site. The designs for each of the sites uniquely reflected the community culture, however there were some consistent features such as grass playing fields, age-appropriate play structures, shaded gathering spaces, community gateways, habitat and natural areas, and in some cases vegetable gardens. Research on maximum physical activity and play value drove the designs, which were conceptualized by a school team approach led by a University of Colorado Denver graduate student.

SPACE TO GROW takes a different approach to the school team or committee by engaging what they call the “school community” of relevant stakeholders in separate meetings over the course of several months. Two teams—a planning team and a garden team—coordinate efforts in general. And in a unique approach, each of the following groups are convened twice for a total of ten meetings: students, teachers, school administration, parents, and the neighboring community. These stakeholder groups allow for rich and open discussion about what each of the groups wants to see in the space without the inhibitions that might result from school or community leadership in the room. These discussions are then folded into several rounds of design that result in a space in which the entire school community feels they have a stake. An added layer to the design of a Space to Grow site is the green infrastructure benefit that each site provides. Because one third of the funding for these schoolyard transformations comes from water agencies in Chicago, there is extensive attention given to permeability of surfaces and stormwater capture by the newly greened areas.

Space to Grow in Chicago engages the school community in the design of their school grounds.



PHOTO CREDIT: Openlands



THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES



Philadelphia Water Department has partnered with schools to implement green infrastructure on schoolyards to manage stormwater and engage children in learning.

Both the **TRUST FOR PUBLIC LAND** and the **PHILADELPHIA WATER DEPARTMENT** have focused on green infrastructure as the driving force behind playground transformation for the community. Asphalt playgrounds are turned into nature-rich environments that advance the city's goals to manage its excess stormwater while also reaping the other benefits to the school and community such as enhanced opportunities for environmental education and beneficial natural play environments for children and families.

COMMUNITY ENGAGEMENT: *Out-of-School-Time Access, After-School Programming, Community Use & Participation*

For many years we have largely focused on green schoolyards as outdoor classrooms to be used for core instruction during the school day. The benefit of these spaces to the community goes well beyond the outreach model to have community engagement in maintaining and sustaining the physical spaces. When we seek to make a rich community space that reaches children in low-income communities, schools serve as that hub for family connections and neighborhood engagement in children's lives. There is a growing trend in creating additional green space in communities by co-locating parks and schools, often considered "shared use" or "joint use" of public lands. Community place-making has gained the mainstream attention of urban planners, community health advocates, and others interested in the well-being of children. Green schoolyards provide opportunities to increase support of community gardens and community parks as places where multiple generations can enjoy recreational activities and relax as they connect with one another.

Community shared use can take many forms, as is outlined in the **SAFE ROUTES TO SCHOOLS** Shared Use Spectrum (see <http://shareduse.saferoutespartnership.org/resources/spectrum-shared-use-0>). It can range from informal agreements to formal joint-use memoranda of understanding or state or municipal policy. Regardless of the level of formality of the agreement or policy, the co-benefit to schools and the community exists when

THE FRONTLINE OF THE MOVEMENT: EXISTING MODELS & PROMISING PRACTICES



Multiple generations use green schoolyards after school hours, benefitting both mental and physical health.

children learn and play in nature-rich environments during the school day, and the community is able to access this same rich environment for additional purposes outside the school day.

As part of existing green schoolyard work, **SPACE TO GROW**, **LEARNING LANDSCAPES**, **TRUST FOR PUBLIC LAND**, and **SPARK PARK** all require community access to the playground transformation projects that they undertake. This public access is meant to provide much-needed green space in priority communities where green space is sparse and where health risks are often high. The challenges involved in not just implementing but maintaining a public park on the school ground must be addressed clearly in the formal agreements that are made, and each school and program addresses this somewhat differently.

Green schoolyards provide rich opportunities for after school programming well beyond what traditional recreational spaces can offer. Biodiversity and diverse play areas on a school ground are shown to engage children in different types of play, which provide opportunity for more engaged free play. Learning opportunities that can be programmed into after school and even summer programming can augment school-day learning with additional outdoor exploration and investigation. There are very few curricula that directly address after school programming, but from all of the resources that exist for garden-based education and environmental education, the potential is there to amplify this opportunity.



PHOTO CREDIT: Metropolitan Water Reclamation District of Greater Chicago

A FRAMEWORK FOR ACTION: RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT

If we stand by our premise that all children deserve to have a green schoolyard in which to play and learn, then we have a long way to go to make that a reality. The participants in Children & Nature Network's interviews, focus groups, and convenings articulated a wide array of ideas about how to move toward wider replication and scale of green schoolyards. We are offering here a highly condensed set of recommendations with the hope that it will spark further national coordinated planning and action in the weeks, months, and years to come.

NETWORK DESIGN	<ul style="list-style-type: none"> Build a Cross-Sector National Strategy Leadership Team Design a National Green Schoolyards Network
POLICY & PARTNERSHIP	<ul style="list-style-type: none"> Advance Policy Change with a Coordinated Agenda Build Partnerships & Funding Streams Across Sectors
RESEARCH	<ul style="list-style-type: none"> Activate New Research With a Research Agenda Create Shared Metrics to Measure Impact of Collective Efforts
RESOURCES	<ul style="list-style-type: none"> Launch a Marketing and Communications Campaign Create a Resource Hub to Support the National Movement
CURRICULUM	<ul style="list-style-type: none"> Develop a Cross-Curricular Pedagogy for Outdoor Learning Create Curricula for Active Outdoor Learning
TRAINING	<ul style="list-style-type: none"> Train School Administration, Staff, and Teachers on Promising Practices Establish a Peer Community of Learning for Teachers
IMPLEMENTATION	<ul style="list-style-type: none"> Replicate Strong Models of Green Schoolyard Initiatives Build Mainstream Implementation Models to Scale Green Schoolyards

A FRAMEWORK FOR ACTION: RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT

BUILD A CROSS-SECTOR NATIONAL STRATEGY LEADERSHIP TEAM

In order to build a coordinated cross-sector approach to a national movement, there must be strong leadership to steer the course of the collective vision and action. This team would ideally consist of leaders in the field who bring diverse expertise from many relevant professional fields, including policy and grassroots change expertise. The national strategy team will initially guide the work by writing a National Green Schoolyards Declaration which will articulate the shared vision, values, goals and desired outcomes. This document will be activated in three primary ways:

1. Asking partners to sign on to the declaration to build the network and demonstrate cross-sector alliances
2. Working with key organizations to build partnerships in addressing the priority goals and outcomes that will ignite the national movement
3. Identifying specific actions of individual organizations, institutions or leadership that can align with these common priority goals and outcomes

DESIGN A NATIONAL GREEN SCHOOLYARDS NETWORK

In an initial investigation of active players in the green schoolyard movement, we determined that there are over 150 green schoolyard support organizations, thousands of individual schools implementing to various degrees, and a few organized networks with communications and convenings. And yet, only a fraction of schools in the U.S. have these quality environments. Green schoolyard networks are coordinating efforts locally, statewide, nationally and internationally, such as the Hawaii Islands School Garden Network, the National School Garden Network, and the International School Grounds Alliance. These organizations, schools, and networks all have different focus areas, such as “school gardens” or “nature play” or “green schools,” which are currently fragmented and disconnected. There are countless other relevant organizations across sectors that are not yet directly engaged, such as the Education Facilities Clearinghouse, the American Planning Association, SHAPE America, and the National Physical Activity Society.

To bring these multiple stakeholders together to build a movement that grows green schoolyards to scale, we will need to employ the latest research and practice on network design. This goes beyond the traditional model of a backbone organization with aligned partners and demands that there be intentionally designed complex sets of connections and actions among the many stakeholders who will expand the scope of the work.

Network actions would include:

1. Writing coordinated funding proposals to select funders
2. Convening stakeholders to advance knowledge and harness aligned action
3. Populating an interactive web platform with stories, expertise, and peer support
4. Sharing information, research, and resources among network stakeholders
5. Presenting on green schoolyards at a wide variety of conferences
6. Targeting outreach to new partners across sectors

A FRAMEWORK FOR ACTION: RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT

ADVANCE POLICY CHANGE WITH A COORDINATED AGENDA

A coordinated national green schoolyard effort will require alignment and prioritization in achieving policy change. To build pathways for people and institutions to engage in the required political processes, the National Leadership Team and network members with policy expertise will build a Policy Agenda and a strategy to support policy advocacy. Research and communications efforts will help the movement make the case for policy change through grassroots efforts.

Some emerging areas from the field that demonstrate opportunities for policy reform include:

- Leveraging school facility dollars to support the inclusion of green schoolyards both in new school construction and during playground updating
- Creating policy to implement green schoolyard design guidelines at state or district levels
- Leveraging existing state, municipal or district shared use policies to expand policy and implementation to include nature-rich schoolyard spaces
- Advocating for shared use of public school land through incentives and clarification of existing liability protections
- Working with municipal leadership to build green schoolyards into City Comprehensive Plans and Sustainability Plans
- Leveraging mayoral support in favor of the multiple community benefits of green schoolyards, designing municipal campaigns on specific issues facing the mayor's office
- Addressing liability barriers, building awareness of existing liability protections, and building awareness and policy actions to encourage healthy beneficial risk in natural play environments
- Working on district-level policy to require outdoor time for learning and play
- Addressing district decision-makers about the cost-benefit of design features such as water retention and shade
- Advocating for new language for technical specifications that address ADA compliance in outdoor learning and play environments on school grounds

BUILD PARTNERSHIPS & FUNDING STREAMS ACROSS SECTORS

The green schoolyards benefits graphic (page 8) provides a menu of potential options for both partnership and funder development that can build up the shared social return on any investment. Nature-rich outdoor play and learning environments on school grounds are not currently the norm, and the strongest argument by decision-makers against it is lack of funding. The National Strategy Leadership Team and the emerging National Green

A FRAMEWORK FOR ACTION: RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT

Schoolyard Network will need to get organized and target specific strategies for scaling the work. We will need to pool funding from cross-sector sources, and we will need green schoolyard organizations to band together to jointly apply for coordinated funding.

A few emerging opportunities for innovative funding from across the country include:

- Accessing water infrastructure dollars in municipal government by facilitating partnerships among schools and water departments, especially with those cities that have received Environmental Protection Agency Consent Decrees
- Pooling funding from schools, municipal parks and recreation, water, and public health departments
- Developing stronger corporate investment, especially by those in need of a pipeline of environmentally savvy STEM students, by businesses who benefit from children and families being healthy, and by companies who directly benefit from children and families engaging in outdoor recreation and play
- Accessing the Community Development Block Grant Program for low-income green space development
- Writing in additional language and budgetary considerations for green schoolyards in municipal bonds
- Working with hospitals to increase the profile of green schoolyards in Community Health Needs Assessments
- Making the case for green schoolyards to take part in Social Impact Bonds

ACTIVATE NEW RESEARCH WITH A RESEARCH AGENDA

One of the goals of the National Green Schoolyard Network will be to advance research on the science of the benefits, outcomes and best practices in implementing green schoolyards. A solid framework needs to be established to launch a successful multidisciplinary research agenda. This agenda will advance understanding of how community-based green schoolyards affect a variety of outcomes, such as physical and mental health, family engagement, academic performance, and ecosystem health. A Research Cohort within the National Green Schoolyard Network will be established to:

1. Exchange research knowledge about green schoolyards across disciplines and sectors, including disciplinary knowledge, findings, tools, methods, resources, theories, approaches and priorities
2. Identify gaps in knowledge about green schoolyards
3. Formulate a long-term multidisciplinary agenda appropriate for sustained collaborative research
4. Conduct collaborative, exploratory research to ground future rigorous studies of the impact of green schoolyards, particularly for disadvantaged children
5. Synthesize and disseminate existing research as well as the Network's research findings

A FRAMEWORK FOR ACTION: RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT

CREATE SHARED METRICS TO MEASURE IMPACT OF COLLECTIVE EFFORTS

Currently there is a significant lack of measurement of green schoolyard prevalence or practices. In order to advocate for additional dollars or policy change to support this emerging field, we must initiate a concerted effort nationally to address this gap in the evidence base. Baseline data must be established, systems for mapping progress and impact must be created, and program practices must be measured in order to inform new implementations. As research tools are developed, the data collection must be standardized and yet capable of addressing the wide variety of ways that green schoolyards are implemented, from a few raised bed vegetable gardens to multi-million-dollar community green space transformations. The field has articulated a need for the following research and evaluation tools:

- A mapping tool to establish baseline of number, type and quality of green schoolyard implementations
- A reporting platform to identify new initiatives and to demonstrate growth over time
- A program evaluation “science-in-a-box” instrument with a common metrics matrix to use across organizations that addresses multiple outcomes and benefits of green schoolyards.
- A new tool that would measure the quality of a school playground environment for child development and serve to build demand and guide decision-makers

Results from the implementation of these tools would be aggregated to create ongoing indications of the growth of the movement.

LAUNCH A MARKETING AND COMMUNICATIONS CAMPAIGN

The green schoolyard work in the field is diverse and has a wide variety of messages about the benefits and best practices. School garden groups often talk about nutrition education and academic benefits; nature play groups communicate the physical activity and social-emotional benefits of diverse play; green infrastructure groups talk about water management services and community education benefits. All of this is true and good, but the multiple messages make for a difficult pathway forward as we seek to communicate to new partners, funders, and decision-makers. We must find a way to simplify the message and then propel it out into the mainstream with a strong marketing and communications campaign. This campaign has to deliver a powerful message to the community decision-makers that shows not only the multiple benefits, but the urgency around the need, especially for children. We can galvanize grassroots efforts with this campaign by activating parents, teachers, school administrators, community advocates, mayors, policy-makers, local and state agencies, and new partners and funders.

A FRAMEWORK FOR ACTION: **RECOMMENDATIONS FOR BUILDING A NATIONAL GREEN SCHOOLYARDS MOVEMENT**

CREATE A RESOURCE HUB TO SUPPORT THE NATIONAL MOVEMENT

There is a wealth of books, lessons, activities, trainings, and design guidelines that supports green schoolyards. Leaders in the field have distilled decades of lessons learned and specific expertise into a wide collection of resources. However, those resources exist in disparate pockets that would not be apparent to any newcomer to the field. To support new stakeholder engagement in the National Green Schoolyard Network, a centralized resource hub needs to be developed. An organized framework will be populated by curated existing resources, and gaps in the resources needed to grow the movement must be identified. All organizations who would provide green schoolyard resources will be championed, and links to further information or deeper resource collections would be provided.

The resources alone will not create impact, so it will be important to activate the resources in two primary ways:

1. The National Green Schoolyard Network will be supported through targeted strategies such as developing communities of practice, trainings, and peer-to-peer communications platforms.
2. Communities will be identified to receive technical assistance and consulting at various stages in development to create community capacity and establish a solid foundation upon which to build new initiatives.

DEVELOP A CROSS-CURRICULAR PEDAGOGY FOR OUTDOOR LEARNING

The heightened attention being paid to academic performance in schools, especially in response to standardized testing, presents both a barrier and an opportunity. Teachers are being held accountable to test scores, which we know from the research, can be accelerated with hands-on experiential outdoor learning. And yet school administrators and teachers largely do not know how to use outdoor spaces of any sort for teaching. Even existing environmental education standards and lessons do not sufficiently address outdoor learning in nature. A pedagogical framework for cross-curricular outdoor learning must be developed. This framework will demonstrate a correlation to existing learning standards across the curriculum, including core subject areas, but also including physical education, health, and after-school programming. This pedagogy will be steeped in research and academic best practices, and will provide practical connections between existing standards-based lessons and lessons that include learning outdoors, regardless of the quality of the school grounds. Scientific field investigations at all grade levels support STEM education and can be leveraged to create demand for rich environments in which to have project-based and inquiry-based learning. Special attention should be paid to the research-based benefits of outdoor learning for students with learning disabilities and mental health challenges so that there is wider physical and programmatic access for full inclusion of all children in hands-on outdoor instruction.

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CREATE CURRICULA FOR ACTIVE OUTDOOR LEARNING

Research in the field of physical activity has shown that there is a direct correlation between time spent outdoors and increases in amounts of physical activity. The Institute of Medicine's school physical activity report *Educating the Student Body: Taking Physical Activity and Physical Education to School* suggested that schools take a whole-of-school approach to physical activity (PA), including before/after school and during classroom time. Those in the school health and public health field have suggested that there is a gap in resources for teachers to use the school ground environment to help children get the recommended 60 minutes per day of PA. Curriculum resources and design guidelines need to be developed to support not only outdoor learning, but *active* outdoor learning where students are encouraged to use hands-on, experiential learning with intentional focus on increasing physical activity. A growing trend in creating short (3-10-minute) "brain breaks" or "brain activators" for physical activity during classroom time has yet to be applied to the schoolyard environment in the U.S. Resources and research are needed to maximize this opportunity for children to have both the physical benefit and the stress-reduction that comes with active outdoor green space engagement.

TRAIN SCHOOL ADMINISTRATION, STAFF, AND TEACHERS ON PROMISING PRACTICES

The school culture is largely one where school administrators require teachers to stick to rigid schedules to ensure that student learning standards are sufficiently covered. Teachers who want to use outdoor classrooms or who want to establish green schoolyards often do not have the decision-making power to overcome the barriers that school administration can put in front of them. And even when green schoolyards are put into place, teachers need to be trained and supported in using that space for the maximum benefit of the school children. Some organizations, such as Life Lab and Real School Gardens, are providing very robust professional development both online and on the ground to support school gardens and green schoolyards. There is an appetite in the field to scale up this training, and there is just not enough capacity currently to meet that demand. We must find scalable ways to harness the wisdom and expertise from the handful of experts in the field to deliver support for changing the school culture so that children can learn outdoors as a part of every school's regular school day. A model has been suggested by several leaders in the field whereby a central hub of trainings would be collected from existing sources, created new to fill gaps, and made accessible online with additional coordinated consulting work from experts to build up specific awareness, proficiencies and on-going support for green schoolyard planning and implementation.

ESTABLISH A PEER COMMUNITY OF LEARNING FOR TEACHERS

Teachers across the country span a wide spectrum of comfort and proficiency in teaching outdoors. For many, teaching in an outdoor classroom does not come naturally, while others are in full-time positions dedicated to engaging children in outdoor learning. Oftentimes, teachers who are engaged in outdoor learning are alone in their school or even in their district, and there has been a resounding need articulated from the field to develop a platform for a community of learning specific to helping teachers on the front lines feel supported, inspired, and

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armed with the latest information. Focused support for the community of learning would be provided to build the community organizing and advocacy skills in teachers so that they can successfully champion local efforts to take green schoolyards to the next level.

In the online platform, teachers would be able to conduct some of the following activities to stay inspired, activated and informed:

- Share stories of success to inspire other teachers to join in using the outdoor green space
- Share resources, ideas, and promising practices to propel high quality use of green schoolyards
- Develop regional connections that could build networks of support, collaboration and partnership
- Develop strategies for mobilizing the entire school community of administration, other teachers, parents, and the neighboring community in support of green schoolyard use and sustained maintenance
- Share funding and partnership models to augment school community support

REPLICATE STRONG MODELS OF GREEN SCHOOLYARDS

There are strong models for green schoolyards across the country, and while each has arisen out of a local ecosystem of funding, partnership and policy support, there is a tremendous amount we can learn and transfer to new communities who have built up initial awareness and capacity. Some of the programs, such as Real School Gardens or Spark Park, are already underway with modified replications of their original model. As new communities and schools express interest in greening their school grounds, we need to provide tools for the local leadership to look carefully at the existing programs, identify the program components that fit their strengths and desired outcomes, and then provide resources and technical assistance to enable new communities to implement these models. In many cases, it might simply mean placing community leaders in touch with existing organizations for additional training and support. In other cases, it might mean consultants working closely with a target community to build the foundation of partnerships and funding to support the replication of a given model.

BUILD MAINSTREAM IMPLEMENTATION MODELS TO SCALE GREEN SCHOOLYARDS

In most communities there is limited capacity to do the long-term planning and implementation of a uniquely crafted green schoolyard implementation, and if we are going to reach scale we have to find a way to package this up and make it relatively easy. Experts in the field understand the fact that green schoolyards are, by their very nature, unique to the community strengths, assets and desires, making each project resource-intensive. And yet, the imprint of communities who have any form of a green schoolyard is far too small. As a field, we have to acknowledge that we have an urgent need to achieve a much broader scale at a much quicker pace than is currently being enacted. We must find new business models for igniting widespread implementation that makes it almost

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as easy as purchasing a new computer lab. If we look to the businesses that sell technology programs to schools, we have some insights to glean. They include instruction, training, and on-going support into a package for school districts that can be purchased. While green schoolyards are much more complex because they are a truly living landscapes with on-going needs, there are ways to better package the process and products that support green schoolyard implementation for communities who would not make deeper and broader investments of time and money. When districts are building new schools or when facilities are due to upgrade and retrofit existing playgrounds, we need to have an easy-to-understand and easy-to-implement product with support services that can be presented as an ignition point for larger-scale schoolyard transformation. To initiate this, we can build partnerships with those in the field who currently work with schools on a large scale and create a green schoolyard package that includes the following:

- Support services for on-boarding school and community stakeholders
- Design toolkit with components that maximize outcomes for children
- Curriculum and training for teachers
- Training and support for facilities professionals
- On-going support for extending schoolyard use and participation by the community
- Demonstration sites for piloting this approach in a variety of contexts to refine and adjust the system



PHOTO CREDIT: Allison Williams



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ABOUT THE CHILDREN & NATURE NETWORK

The Children & Nature Network (C&NN) is leading a movement to connect all children, their families and communities to nature through innovative ideas, evidence-based resources and tools, broad-based collaboration and support of grassroots leadership. C&NN is the only organization focused solely on building a national and international movement that reconnects children with nature to optimize their healthy development—cognitively, emotionally, socially and physically. C&NN builds awareness, provides access to state-of-the-art resources, supports the grassroots with tools and strategies, develops publications and educational materials, synthesizes the best available research, and encourages collaboration to infuse the connection of children to nature in policy, programs, and partnerships across the world. C&NN is a 501c3 non-profit organization.

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The W.K. Kellogg Foundation is based in Battle Creek, Mich., and works throughout the United States and internationally, as well as with sovereign tribes. Special emphasis is paid to priority places where there are high concentrations of poverty and where children face significant barriers to success. For more information, visit www.wkkf.org

FOR MORE INFORMATION

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