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NATIONAL COVID-19 OUTDOOR LEARNING INITIATIVE

The National COVID-19 Outdoor Learning Initiative supports school districts around the country in their efforts to reopen safely and equitably using outdoor spaces as strategic, cost-effective tools to increase capacity with physical distancing measures in place. The Initiative seeks to equitably improve learning, mental and physical health, and happiness for children and adults using an affordable, time-tested outdoor approach to keeping schools open during a pandemic.

School districts across the United States are facing an uphill battle as they figure out how to navigate COVID-19 physical distancing and fresh air requirements that will allow students to return to campus. There is an urgent need to reimagine PreK-12 schools in order to safely reopen. Repurposing outdoor spaces is a cost-effective way to reduce the burden on indoor classrooms while providing fresh air, hands-on learning opportunities, and the health benefits associated with increased access to nature.

The National COVID-19 Outdoor Learning Initiative is leading a movement to make outdoor learning the new reopening "Plan A" across the country. We provide technical assistance to school districts to help them move school programs outside during the pandemic, creating outdoor classrooms that will also benefit the schools longterm.

WHY IS IT DIFFICULT TO REOPEN?

- ***Not enough space indoors***. School buildings were not designed to accommodate students 6 feet apart.
- ***Poor ventilation.*** School ventilation systems were not built to filter a pandemic virus, and many buildings are in disrepair.
- ***Health concerns.*** Teachers and parents feel unsafe with the current conditions inside school buildings.
- ***Staffing shortage.*** Most schools are splitting classes in half to reduce cohort size. More educators are needed to support the new smaller groupings.
- ***No guidance.*** Districts have insufficient guidance on how to operationalize public health mitigation strategies needed to support students and staff on site.

URGENT NEED TO RETURN TO SCHOOL

Since the pandemic began, there has been widespread learning loss and a growing mental health crisis for students of all ages who are separated from their teachers, classmates, and the personal interactions that make learning engaging and lessons memorable. Even the best online program is of no use to students who lack computers or internet access. In California alone, "1.8 million children live in homes without high-speed internet."[1]

Remote learning leaves many students without a safe, stable place to go and dramatically increases inequities faced by students who were already the most vulnerable. Students across the country need to return to campus where they can connect with school resources most effectively.

Above: Linden Waldorf School in Nashville, Tennessee moved all classes outside this year.

HEALTH SCIENCE SUPPORTS OUTDOOR SCHOOLING

"Existing evidence supports the wide-held belief that the risk of SARS-CoV-2 transmission is lower outdoors"[2] compared to indoor settings. A study conducted in Japan found that the odds of spreading the virus outdoors was 19 times lower than indoors, and that the odds of super spreading the virus was 32 times lower outdoors than indoors.[3]

Reduced Respiratory Transmission

Outdoor environments naturally have greater ventilation, air flow, and air volume than indoor spaces, and air is not recirculated outside. School grounds are also generally larger than their indoor spaces, so there is more room to increase the distance between people and between cohorts. These conditions make virus transmission much less likely outside.[4]

Reduced Contact Transmission

Direct sunlight reduces virus survival on outdoor surfaces. When weather conditions include high temperatures and high humidity, those factors also further reduce virus survival on outdoor surfaces. Porous natural surfaces outdoors also decrease virus survival.[5]

While the overall evidence points to lower transmission rates outdoors, there are still some gaps in health science data that must be filled to better understand the specific pathways of transmission outdoors.[6] This means that it is important for schools to continue using similar COVID-19 health protocols when they are outside, that they practice inside. Such measures include: masks, distance, hand washing, cohorts, disinfecting high-touch surfaces, and staying home when sick.

Improved Physiological Outcomes

Many health inequities are directly or indirectly related to lack of access to outdoor space. School grounds are often an accessible solution, and have the potential to provide all children with access to nature on a daily basis if the site includes trees and green space. Outdoor learning and increased contact with nature promote physiological outcomes in children that have lifelong benefits. Children who spend more time outdoors in nature, particularly at school, are more likely to participate in regular moderate-to-vigorous physical activity. Nature exposure is also one the most powerful regulators of healthy immune function.[7]

Improved Mental Health and Social-Emotional Benefits

Being outdoors improves access to nature, which has therapeutic benefits for mental health. Mental health is always important, but it is a primary concern during the COVID-19 pandemic since students and adults have been experiencing a heavy mental health burden caused by social isolation, uncertainty, trauma, and stress. Research tell us that passive and active engagement in nature supports children's social-emotional health and wellbeing.[8] Hands-on outdoor learning builds confidence and resilience, and offers opportunities for collaboration which increase connection and engagement.

EDUCATION RESEARCH SUPPORTS OUTDOOR LEARNING

Learning outdoors has clear benefits for student cognition and education that complements instruction that takes place indoors. Spending time in nature replenishes voluntary focus and improves attention, concentration, and working memory. Outdoor play and outdoor lessons also have an impact on subsequent indoor learning by decreasing stress, and increasing focus, attention, motivation, and engagement with academic materials.[9]

First graders now spend all of their time outdoors at Golestan School in El Cerrito, California.

OUTDOOR LEARNING HELPS DISTRICTS REOPEN AND STAY OPEN

School grounds and other outdoor spaces are an overlooked resource that can be harnessed to help school districts reopen safely and cost-effectively, in a manner that improves students' mental and physical health and makes learning more engaging. These health and learning benefits are relevant well beyond the COVID-19 pandemic, so investments made now will benefit schools for decades to come. Benefits include:

- ***Reduced transmission risk.*** Being outdoors is particularly important for periods of extended contact (class time) and mask breaks (meals).
- ***Increased confidence in school safety.*** Holding school outdoors reduces transmission risk, so teachers feel more confident in returning to their jobs, and parents feel better about allowing their children to return to in-person instruction.
- ***Increased capacity.*** There is often more space outside than inside, so it is easier to accommodate physical distancing and slightly larger cohorts. Using outdoor spaces increases the number of students who can safely be on campus.

- ***Full range of educational tools.*** Schools trying outdoor classrooms for the first time often find it helpful to bring laptops and WiFi outside with them.
- ***Hands-on learning.*** Outdoor seating areas can be placed near resources for hands-on curricula.
- ***Therapeutic mental health benefits.*** Being outside improves access to nature, which has therapeutic mental health benefits.

INVESTMENTS IN OUTDOOR LEARNING PROVIDE LONGTERM BENEFITS

Thousands of schools across the country have started to invest in outdoor learning. Many educators provide key parts of their curriculum via field trips that engage students in their community and local ecosystems. Over the past 25 years, teachers and communities have also worked together to build school gardens and green schoolyards. These programs were growing and thriving before the pandemic because school districts value them as important instructional resources for students across grade levels and subject areas. Longterm investments in large scale green infrastructure on school grounds cools urban heat islands, infiltrates stormwater, and teaches the next generation to be stewards of shared public land.

If we make investments *now* in durable outdoor classroom infrastructure, outdoor teaching materials, and professional development, they will serve school districts well during the pandemic and will also help to strengthen our national educational system for decades to come.

OUTDOOR LEARNING IS ALREADY UNDERWAY

Case Study: Portland Public Schools, Maine

The 17 schools at Portland Public Schools (PPS) serve 6,750 students in grades PreK-12. PPS was one of the first public school districts in the country to develop a district-wide outdoor learning program for the 2020-21 school year in response to COVID-19. This fall, the school district has more than 5,000 students using 156 new outdoor classroom spaces across all of their school campuses, funded in part by the CARES Act.

Students meet outside for class this year at Casco Bay High School in Portland, Maine.

This new program with district-wide leadership and school board support builds on an existing network of smaller outdoor learning projects that were created by individual teachers in previous years. The current district-wide program helps to align these efforts and builds on them with new investments distributed across all school campuses. This newly expanded effort addresses the current pandemic, while also laying the foundation for a longterm outdoor learning program in the years to come.

The program is very successful. As of November 2020, more than 50% of Portland Public School's teachers reported using outdoor classrooms on a regular basis. For most of them, this is their first experience teaching outside—so this is a remarkable achievement. Most PPS schools plan to use outdoor learning through the snowy winter months.

Case Study: Linden Waldorf School, Tennessee

Linden Waldorf School in Nashville, Tennessee is an independent school, nestled on 12.6 acres of woods and green space that allow students to experience the natural world every day. The school serves ~200 children in grades K-8 with 29 staff members.

In July 2020, the school decided to address COVID-19 by bringing all classes and programs outside as much as possible for the 2020-21 school year. In only five weeks, they designed, permitted, and built nine new permanent outdoor shelters that were ready before school started in September.

As a Waldorf School, their academic program and philosophy are well aligned with outdoor learning. In previous years, students spent approximately 30% of each day outdoors. With their new outdoor classroom spaces, 100% of the students are now spending approximately 95% of each school day outdoors. Their new outdoor spaces are much-loved by the school community and have allowed them to operate a full time, in-person learning program for the whole fall semester—without spreading the virus.

Linden Waldorf School in Nashville, Tennessee has been using their beautiful new outdoor classrooms since September.

EQUITY AND SCALE ARE CENTRALLY IMPORTANT BUT ARE NOT YET ACHIEVED

As these examples illustrate, the first wave of schools and districts across the country are already using outdoor spaces on their grounds and in local parks to bring their classes, meals, and programs outside. They are applying a wide variety of cost-effective solutions to enable in-person learning this year, and are making investments that they will use for years to come. Their work and their positive experiences show that this solution is feasible, desirable, and effective.

The National COVID-19 Outdoor Learning Initiative has observed that smaller institutions have been able to pivot faster than larger ones, but there is deep interest in moving outdoors from public school districts in every state—in all climate zones, for all grade levels, across the economic spectrum.

Under investment in school grounds has meant that public school districts—urban, suburban, town, and rural—are burdened by acres of asphalt and years of deferred maintenance. Low wealth school districts, in particular, need increased government investment, guidance, and technical support in order to scale outdoor learning quickly to address this crisis.

The COVID-19 pandemic has exacerbated inequalities that were already present in our society, and our country's most vulnerable students are the hardest hit. Returning to school in-person is not just something that is "nice to have"—it is vital for students' academic success and mental health. It is imperative that the United States move quickly to enable all school districts to provide outdoor classrooms and the myriad of benefits outdoor learning affords during the pandemic. Moving outside will help school districts through this crisis, and the investments made now in outdoor learning will enrich education in the years to come.

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Schools with acres of asphalt need additional resources to provide equitable outdoor learning spaces.

ENDNOTES

1 Alliance for Excellent Education, Keeping Students Linked in California. 2020.

2 Tommaso Celeste Bulfone, MS, Mohsen Malekinejad, MD, DrPh, George W Rutherford, MD, AM, Nooshin Razani, MD, MPH, Outdoor Transmission of SARS-CoV-2 and Other Respiratory Viruses, a Systematic Review, The Journal of Infectious Diseases, 29 November 2020, jiaa742.

See also: **Recorded webinar**, Demythologizing COVID-19: How to Use Outdoor Learning Spaces to Help Control COVID-19 Transmission as Schools Reopen, 1 September 2020, webinar timestamp 24:30. Dr. Nooshin Razani, MD, MPH, Founder and Director of the Center for Nature and Health at UC San Francisco reported on the Tommaso et al study. Findings included that less than 1% of the studies reviewed reported transmission occurred outside.

3 Tommaso et al, 2020, references data from: Nishiura H, Oshitani H, Kobayashi T, et al. Closed environments facilitate secondary transmission of coronavirus disease 2019 (COVID-19). medRxiv [Internet]. Cold Spring Harbor Laboratory Press; 2020 [cited 2020 Aug 15]; :2020.02.28.20029272.

4 This information is summarized from the recorded webinar presentation by Dr. Nooshin Razani, noted above.

5 Ibid.

6 Ibid.

7 Excerpt from forthcoming publication from the National COVID-19 Outdoor Learning Initiative entitled, General Health Benefits of Being Outdoors at School. Co-authors: Mila Antova, PLA; Karen Canan; Caitlin Koob, OTR/L; Abigail Levinson Marks, PhD; Marci Raney, PhD; Amy Wagenfeld, PhD, OTR/L, SCEM, EDAC, FAOTA. December 2020. This publication includes an extensive list of research references that support these statements. Some of the citations include:

Li, D. & Sullivan, W.C. (2016). Impacts of views to school landscapes on recovery from stress and mental fatigue. Landscape and Urban Planning, 148, p. 149-158.

Jiang, B., Li, D., Larsen, L., & Sullivan, W.C. (2016). A dose-response curve describing relationship between tree density and self-reported stress recovery. Env't & Behavior.

Kuo, F.E., & Faber Taylor, A. (2004). A potential natural treatment for attention-deficit/hyperactivity disorder: evidence from a national study. American Journal of Public Health [Internet], 94: 1580–1586.

8 Ibid.

9 Ibid.

ABOUT THE NATIONAL INITIATIVE

The **National COVID-19 Outdoor Learning Initiative** was co-founded in May 2020 by Green Schoolyards America, The Lawrence Hall of Science, San Mateo County Office of Education, and Ten Strands. It has now grown to include more than 20 other **partner organizations** and hundreds of volunteers who are collaborating to build a national movement to help schools reopen safely and equitably using outdoor learning as a COVID-19 response tool. Our Initiative is highly interdisciplinary and includes professionals from the health, education, design, policy, environment, green infrastructure, and community engagement sectors across the country.