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Healthy Students Learn Better

Why should school advocates focus on the physical environment of a school? Because healthy students learn better, and healthy educators teach better. A healthy school physical environment supports everyone's health.

This **Healthy Students Learn Better Practice Guide series** gives you resources, tips, and tools to create a healthy school physical environment.

PRACTICE GUIDE 1

Measure, Improve, and Track School Environmental Health

PRACTICE GUIDE 1 outlines why school physical environments matter. It includes practical strategies and resources for school leaders. These strategies and resources will help you develop and sustain initiatives to measure, improve, and track the school physical environmental health.

Other Practice Guides in This Series

PRACTICE GUIDE 2 gets students involved in citizen science projects for school environmental health.

PRACTICE GUIDE 3 provides resources to support school environmental health.

PRACTICE GUIDE 4 gives tips to engage partners and your community in your effort.

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Why does the school physical environment matter?

Children and school staff spend a lot of their time in and around school buildings. This means they have a lot of contact with the school's physical environment. We define that to include the contents and quality of the school's air, water, building materials, furniture, equipment, and climate control systems. It also includes the soil, plants, animals, weather, and climate of the community. A school's physical environmental health can lead to immediate and longer lasting outcomes that have positive or negative effects for both children and adults.

EXAMPLES

- Students in schools with healthy physical environments are more likely to attend and perform better on tests.[1,2]
- Teachers in schools with healthy physical environments are more likely to be motivated and less likely to leave their schools.[3,4]
- School temperatures are growing too hot for students to learn.[5,6]
- High levels of particulate matter, or PM, in the air and poor water quality can cause poor health and educational outcomes.[7–11] PM is tiny particles or droplets in the air, like ash from fires and smoke from pollution, that can be harmful when inhaled.
- Students who live in poverty or come from non-majority backgrounds are more likely to live in a community with poor environmental health conditions. Thus, they are more likely to attend a school that has poor physical environmental health.[12,13,14]
- Extreme outdoor conditions worsen existing indoor environmental problems and create new ones. Examples are heat waves, wildfires, severe storms, flooding, and increases in ozone and pollen.[15,16,17]
- Children are more sensitive to the environment and climate than adults because their bodies and minds develop quickly.[18–21]
- School physical and social environments in schools can affect each other. They can be integrated into school climate initiatives for school improvement.[22,23]

How can school advocates make a difference in school environmental health?

Students, parents, community members, and school staff can be advocates for school environmental health. This practice guide outlines **two action elements** with guiding questions, activities, and resources to create a school environmental health program. You can pick questions and activities that are relevant and useful for you, and you can use them as models to develop questions and activities for your own context. See the **RESOURCES** section for tools and evidence to answer your questions and conduct your activities.

Learn about your school's physical environment to identify areas for improvement

1 ELEMENT

Ask questions about the air, water, heat, and other aspects of the physical environment in your school and community. Think about how the physical environment affects your students' educational experiences and outcomes. Also think about how it affects whether teachers stay at the school or leave.

Ask these questions to understand the situation at your school:

Do we need to improve the environmental health of our school to improve the well-being of our students, parents, and staff? What areas do we need to improve?

Are some students and staff strongly affected by environmental health conditions in our school? What are the effects?

What are state and federal laws about school environmental health?

What do environmental, health, and educational data resources say about the environment and the people who live in our community, region, or state?

What do different sources of administrative data on topics like student achievement, standardized testing, attendance, and grade advancement show about students' educational progress, achievement, and experiences in our state, district, or school?

What are the environmental conditions at our school? What do we do to track and maintain environmental health?

Use the activities below to learn about your school's environmental health:

Ask these questions at meetings with staff, school leadership, the parent-teacher organization, the school board, the city council, or the county government. Ask for volunteers from those meetings to discuss these questions at a separate meeting.

Use **PRACTICE GUIDE 2** to carry out student environmental health projects in your classroom. Have students gather information to identify environmental health needs. This will give them real-world learning opportunities in different areas, such as science, technology, engineering, and mathematics (STEM); English language arts; art; computer science; social studies; civics; and health. For example, high school students could do Activity 1 as part of a citizen science class project in civics or health.

See the **RESOURCES** section to learn what information is available about your school community's environmental advantages and challenges related to educational outcomes.

Organize your findings from the previous activities. The evidence may point to one or more school environmental issues that should be addressed. The evidence also may give you ideas on how to address these issues. Decide if you need more information. If so, think about whether this could be a student citizen science project (Activity 2) or if you need professional support.

Create a foundation for success and develop an action plan to address your environmental health focus area

ELEMENT 2

Two main drivers of successful implementation are effective leadership and how well an initiative fits with the school's community values, culture, history, and other initiatives.[24,25] A third driver is action planning. Find school advocates who will champion and provide leadership for your school's environmental health initiatives. Work on an action plan with them to identify the best strategies to carry out your project. Even if you need to make adjustments later, it is important to set up a timeline for the action plan. Some elements and activities may need a lot of time for review or approvals from other groups.

Ask these questions to create a strong foundation and develop your action plan:

- Which school advocates could champion a school environmental health initiative?
- Which possible solutions to school environmental health issues would work?
- Can we integrate our plan for environmental health improvement into an existing or planned school improvement initiative?

Use the activities below to identify champions, think about how the initiative fits, and develop your action plan:

Identify individuals or groups who could be champions to lead school environmental health programs and help with the work. Students, teachers, parent organizations, and after-school programs can be part of the team of champions who make improvements happen.

Think about which solutions are **FARE: Feasible, Acceptable, Relevant, and Effective**.

Feasible to implement
You have what you need, or you can get the resources you need. This includes funding, team members, and physical resources like space and materials.

Acceptable to school leaders, teachers, students, parents, and community members
Your action plan doesn't conflict with more pressing issues. It also won't have negative effects on school or community functioning, improvement, experiences, and environmental health.

Relevant to your context
The action plan fits with the problem to be solved. It also fits with school operations and initiatives that exist or are planned.

Effective at improving environmental health
There is evidence that your action plan has been successful in similar schools.

(Action plan activities continues on next page.)

Create a foundation for success and develop an action plan to address your environmental health focus area *(cont.)*

Think about how the solutions you have identified to track and improve your school's physical environmental health could align with plans and activities for another school improvement project. Think about whether and how these solutions are FARE. This can help you see if they fit with something you are already doing.

Look through the free technical assistance tools for school environmental health in Table 5 in the **RESOURCES** section starting on the next page. Many of the tools may be useful for your action plan.

Outline your action plan using a template.

- **GOAL:** What do we want to do?
- **STRATEGY:** How can we achieve our goal?
- **ACTIVITY:** What actions do we need to take to carry out our strategy?
- **EVALUATION MEASURE:** How will we know if our strategy and activities are successful or need to be improved?

Use **PRACTICE GUIDE 4** for tips and strategies to help you share your findings, raise awareness about school's and community's environmental issues, get feedback on possible solutions, gather support, and build your team of champions.

TEMPLATE: ACTION PLAN EXAMPLE

GOAL: Improve our indoor air quality using student citizen science projects to measure and track air quality.

STRATEGY 1

Raise funds:

Activity 1: Hold a car wash.

Activity 2: Apply for a local grant using **PRACTICE GUIDE 3**.

Evaluation measure:
Get funding for citizen science projects in five classrooms by the start of [insert school year].

STRATEGY 2

Provide professional development for teachers:

Activity 1: Introduce classroom citizen science projects for air quality at the staff meeting on [date].

Activity 2: Select a day/time for staff planning time to review **PRACTICE GUIDE 2** for ideas on citizen science projects.

Activity 3: Select a day/time for staff planning time to finish lesson plans for citizen science projects and identify materials they need.

Evaluation measure:
Students begin citizen science projects in at least two civics classes and two physics classrooms in fall [insert school year].

Summary

The health of your school's environment affects the well-being of students and staff. This influences students' educational experiences and life outcomes. It is important to learn about your school's environmental health to identify areas for improvement, create a foundation for success, and develop a plan to address those areas using FARE solutions. If you can fit these solutions and activities into existing school improvement efforts, you will be more likely to achieve your environmental health goals.

This practice guide suggests questions and activities that could be starting points and pathways. Choose the ones that are relevant to your situation and use them as models to develop your own. Use the other practice guides in the series to implement a citizen science approach (**PRACTICE GUIDE 2**); get the funding you need for your program (**PRACTICE GUIDE 3**); and communicate with your school community to create and sustain feasible programs that benefit students' educational experiences and academic outcomes (**PRACTICE GUIDE 4**).

Resources

Use the following tools and sources of evidence to answer the questions and inform the activities suggested in this practice guide. These links can also serve as a starting point to find other resources.

Table 1. Citizen Science and Civics Learning

RESOURCE	INFORMATION AVAILABLE
Healthy Students Learn Better Practice Guide 2	**Phase 1:** Pre-learning videos for discussion about air quality, water quality, and heat for prekindergarten (preK), elementary, middle, and high school students.
	Phase 2: Anchoring questions to explore the environmental health in your school and community for different subjects and for class project brainstorming and preparation.
	Phase 3: Small group questions to help students identify topic areas of focus for projects.
	Phase 4: Citizen science project examples focusing on air quality and heat for preK, elementary, middle, and high school students.
Healthy Students Learn Better Practice Guide 3	Tips, strategies, and resources for funding your citizen science project and making improvements.
Healthy Students Learn Better Practice Guide 4	Tips and strategies to help you share your findings, raise awareness about school and community environmental issues, get feedback on possible solutions, gather support, and build your team of champions.

Table 2. State and Federal Laws and Tools for School Environmental Health

RESOURCE	INFORMATION AVAILABLE
State environmental mapping and data tools (do a browser search for your state).	Measures of pollution, population health, and socioeconomic characteristics (often searchable by county, city or town, census tract number, address, and place name).
State Innovations to Improve Indoor Air Quality	State statutes related to planning and specific building materials, components, characteristics, and practices that are like the National Environmental Policy Act (NEPA).
States and Local Jurisdictions With NEPA-Like Environmental Planning Requirements	
State School Environmental Health Statutes At-A-Glance	
U.S. Environmental Protection Agency Lead and Copper Rule Improvements	Fact sheets and funding resources on the Final Lead and Copper Rule Improvements to identify and replace lead pipes within 10 years across the country as part of the Bipartisan Infrastructure Law of 2024.

Table 3. Environment, Health, and Educational Opportunity

RESOURCE	INFORMATION AVAILABLE
Census Track Data by State and County	Census tract numbers and county lines for any state to use with the national and state environmental tools. The interface is searchable by state and useful for learning about different census tracts. See the "Find Address Geographies" resource for individual tracts.
Community Resilience Estimates	Social, economic, housing, and household vulnerabilities that hinder community resilience. Provides maps comparing the state, county, and census tract to national percentage estimates.
Community Resilience Estimate for Heat	Data downloads of experimental measurements of extreme heat exposure in 2022 and social vulnerabilities that hinder community resilience. Data are available for the United States, states, counties, and census tracts. Tip: When you open the CSV (comma separated values) file using Microsoft Excel, choose "Do Not Convert" when prompted.
County Health Rankings	Annual rankings that compare counties and states to the United States on demographics, health outcomes, health factors, clinical care, social and economic factors, and the physical environment. The interface is searchable by state, county, or ZIP code. It provides tables, maps that show cities and congressional districts, and datasets for download.
Find Address Geographies	Search by address to find codes for geographic units, such as state, county, and census tract. Scroll down to the Census Tracts section and get the census tract number from the last item, "NAME."
PLACES local data for better health	Interactive maps for model-based estimates of 40 chronic conditions, prevention activities, health risk behaviors, disability, health status, health-related needs, and social determinants of health measures shown as percentages for the census tract. The interface is searchable by county, census tract number, ZIP code, address, and place name.

Table 4. Administrative and Standardized Assessment Data

RESOURCE	INFORMATION AVAILABLE
Student-level administrative and achievement data by district and school through browser search for "[State name] school report cards"	Data on student enrollment, attendance, characteristics, performance, and achievement (e.g., standardized tests, grades, grade retention), and staff qualifications and employment history for districts, schools, and potentially other geographies, depending on the state's data collection and reporting process.
National Assessment of Educational Progress—The Nation's Report Card Data Tools State Profiles	Both state/jurisdiction (Department of Defense Education Agency, D.C., and Puerto Rico) and national-level data on average scale scores, percentage at or above *Basic*, and percentage at or above *Proficient* in mathematics, reading, science, and writing for grades 4, 8, and 12 (not all states have data on all grades). The interface allows you to select the year (all odd years from 2003–2019, 2022, and 2024 will be available soon). The interface also presents a table of past assessment year results and whether each year was statistically different from the national results, a map showing comparisons to other states, student sociodemographic characteristics, and comparisons by sociodemographic groups. The interface provides downloadable custom tables. Like the state report card, the second interface compares large cities and districts to other large cities and districts.
National Assessment of Educational Progress for select large cities and districts—The Nation's Report Card	

Table 5. Environmental Health Checklists for Schools

RESOURCE	INFORMATION AVAILABLE
Indoor air quality checklists and backgrounders for specific audiences and functions	Checklists for classroom teachers, administrative staff, health officers, school nurses, and school officials and for specific school functions (e.g., building and grounds maintenance, waste management, ventilation) on indoor air quality and thermal comfort to gather information on your school or district.
Healthy Schools Checklist	A self-assessment of your school's or district's current environmental health.
School Drinking Water Needs Assessment Checklist and Planning Guide	A checklist for school leaders to self-assess areas relevant to water access and quality (testing). The planning guide contains questions to guide further action for your school or district.
School Health Index (SHI) Module 8: Physical Environment	Module 8 (and all modules in the SHI) provides discussion questions, scoring descriptions, and a score card to self-assess whether indicators of each component are fully in place, partially in place, under development, or not in place in your school or district. The module score can be used to complete the planning questions.

Table 6. Planning Resources for School Leaders

RESOURCE	INFORMATION AVAILABLE
Creating a Healthy School Environment	Sets of resources to create healthy school and child care environments; learn about environmental health threats to your school, students, and staff; and protect children's environmental health, as well as information on school funding opportunities related to improving children's health. Specific topics include assessing and improving your school environment, combatting air pollution, cleaning and using chemicals safely, managing pests, managing asthma, and reducing waste.
Indoor Air Quality (IAQ) Tools for Schools Resources	A management framework, an action kit, preventative maintenance guide documents, an assessment mobile app, and videos.
New York State School Environmental Health Program	A state example of voluntary, practical, and low-cost information to act on indoor air, extreme weather and climate conditions, pests, mold/moisture, chemicals, cleaning, transportation, construction, and water quality. Incorporates the self-assessment checklists listed above in Table 5.
Parents for Healthy Schools	A set of evidence-based strategies and resources to assist with encouraging parent involvement in school health. Although this focuses on school wellness programs, it could be used as a model for school physical environmental health initiatives, which would benefit school wellness programs.
Sensible Steps to Healthier School Environments	Information and practical, effective, and low-cost steps to address 16 common physical environment issues as well as energy conservation and waste reduction. Includes a self-assessment that covers these issues.
School Climate Improvement Resource Package of Action Guides	Action steps that different members of the school community can take to improve the school climate—which includes safety, a supportive academic, disciplinary, and physical environment—and encourage and maintain respectful, trusting, and caring relationships throughout the school community.
Your Guide to Using the School Health Index (SHI)	SHI Module 8: Physical environment information, materials, and resources on how to use the information gathered in the School Health Index (SHI) Module 8: Physical Environment checklist shown in Table 5. This includes information and resources to conduct trainings, provide workshops, and make presentations.

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