Examples of Educational Strategies to Promote Environmental Health

**Description of tool:**
This tool describes the contribution that skills-based health education brings to efforts aimed at creating a health-supportive physical environment at schools or in communities. In addition, it suggests educational themes and strategies that could form the basis of a curriculum unit to promote environmental health.

The information in this tool was adapted by UNESCO from the following publication:


**Description of document:**
This document, which focuses on the physical environment in schools, provides guidance to assist school personnel to identify and modify aspects of the physical environment that jeopardize safety and health. It further contains guidance to ensure that positive changes in a school’s physical environment are supported, reinforced and sustained by school health policy, skills-based health education and school health services, as called for in the international FRESH initiative for effective school health programming.

This information or activity supports Core Component #3 of the FRESH framework for effective school health: **skills-based health education**. It will have a greater impact if it is reinforced by activities in the other three components of the framework.
### I. Introduction

The World Health Organization estimates that between 25% and 33% of the global burden of disease can be attributed to environmental risk factors. Children, due to their reduced immunity, their immature physiology, and the fact that they are growing and developing at a rapid rate, are even more vulnerable than adults to the adverse health effects of chemical, physical and biological hazards.

A majority of children throughout the world now attend primary school, which means they spend a significant amount of time within school environments during critical stages in their development. As expected, the physical environment of a school impacts the health of both its students and staff, with consequences that are not limited to the occurrence of immediate illness and disability, but also extend to the development of diseases with longer latency periods (e.g., cancers), and include effects on related matters such as school enrolment, attendance and learning.

Potential risks at school include unsafe water and sanitation, contaminated indoor and outdoor air; unsafe building structures; vector-borne diseases such as malaria, yellow fever and dengue fever; excessive exposure to ultraviolet radiation from the sun; and facilities that are contaminated with asbestos, organic solvents, bacteria and toxic metals such as lead and arsenic.

All members of the school community need clean air to breathe, clean water to drink, a safe place for recreation, a safe way to travel to school, and protection from extreme temperatures and ultraviolet radiation. A safe and healthy physical environment requires a good location and safe buildings; protection from excessive noise; natural light; appropriate water and sanitation facilities; clean indoor air; a healthy outdoor environment; and healthy school-related activities including safe management and maintenance practices, use of non-toxic cleaning supplies, careful use of pesticides, vector control, and use of non-toxic art supplies.

Though some matters of environmental health must be decided, managed and enforced by authorities at the highest levels of government, an informed and motivated group of school/community members can achieve a great deal, at little or no cost, at the local school level. Education plays a key role in efforts to mobilize participation in effective and sustainable action to protect and improve the physical environment of a particular school.

### II. The role of skills-based health education

Much can (and often must) be done to improve physical structures and conditions at the school (see Creating a Healthy School Environment), however, physical changes alone will not suffice to create a health-supportive physical environment at schools or in communities. Students, and the adults they will soon become, will need to acquire knowledge, attitudes, values and skills to sustain improvements and address new challenges in the environment. Skills-based health education, along with school health policies, school health services and a health-supportive school environment are considered the basic components of an effective school health programme. Actions taken in these four key areas complement and reinforce each other.
Skills-based health education to promote environmental health should:

- increase awareness of environmental threats to health,
- generate a feeling of responsibility for health and the environment,
- inform students about how to avoid health risks and how to create an environment that is conducive to healthy living,
- be designed to contribute to improvements in the physical school environment including the school site and buildings, indoor and outdoor air quality, and school-related activities affecting the environmental quality of schools,
- improve the health of students.

Collaboration between education and health officials, the school health team, the community advisory committee and other school and community members is necessary to identify the knowledge, attitudes, behaviours, skills and services students need to acquire to protect themselves from illness and hazards associated with the physical environment at school or in their communities, and to help improve environmental conditions that affect health.

Educational strategies and materials for environmental health-related issues are available through some governmental and non-governmental agencies and organizations, universities, and teachers’ unions. Supplemental materials specific to the local environment can be generated by teachers in collaboration with health officials, the school health team, the community advisory committee and other school and community members who can help identify the physical environmental conditions that affect children’s health in the community.

### III. Examples of educational strategies to promote environmental health

The topical issues and learning activities suggested below could form the basis for a unit dealing with environmental health within the overall health education curriculum. Or, where health is not a separate course of study, they could be adapted to fit within other disciplines (e.g., history, science, mathematics, geography, social studies, literature, art, etc.) at various grade levels.

#### Environmental health

- Explain how specific illnesses are related to poor environmental quality.
- Identify key environmental threats to health within your school and community.
- Older students could compare threats among different regions of their country, or among different countries around the world.

#### Air

- Identify possible sources of indoor air pollution.
- Identify sources of air pollution within schools (e.g., wood smoke cooking fumes, pesticides, and volatile chemicals.)
- Discuss practical options to improve air quality within the school.
Identify sources of air pollution within the community (e.g., motor vehicles, industrial activity, construction equipment, and agricultural practices.)

- Consider how pollution levels might be reduced, or how exposure may be minimized.
- Explore how pollution may vary by time of day.
- Research whether indoor air is cleaner than outdoor air, and the implications for ventilation.
- Keep track of rates of respiratory illness within the school through the year. Use this as an opportunity to teach mathematics and graphing of data.

- **Water**
  - Identify sources of water in the community.
  - Identify contaminants that may threaten the local water supply.
  - Explore how land use practices may affect water quality in your community.
  - Discuss ways to keep the water supply safe from dirt, bacteria, parasites, or other contaminants that could make the water supply unhealthy.
  - Explore ways of promoting safe water storage and disinfection practices in the home.
  - Research how human illness may be related to water pollution.
  - Have older students design a water quality sampling strategy that would capture different types of pollution, and its variability throughout the year.
  - Keep track of the use of pesticides within your community, and learn about the potential of pesticides to contaminate water supplies.

- **Food**
  - Discuss types of food contamination in the community including the possibility of contamination by human or animal waste, manure, pesticides used on crops, or other chemicals accidentally or intentionally added to the local food supply.
  - Have older students design, conduct and analyze a dietary survey.
  - Explore how dietary patterns among students compare with recommended nutritional guidelines.
  - Identify the sources of all foods and drinks consumed during a single day or meal.
  - Discuss proper food handling procedures.

- **Waste**
  - Discuss types of wastes generated in the community, e.g., chemical waste (pesticides, industrial waste), solid waste (household trash), and liquid waste (animal/human urine, faeces, waste water).
  - Identify common practices of disposing of waste, including excreta, in the community.
  - Discuss risks associated with improper waste disposal.
  - Younger children could make posters showing different types of waste in the community and how each should be disposed.
Disease vectors

- Students can identify key disease vectors in their community (e.g., mosquitoes, ticks, worms, rodents, etc.).
- Develop a unit within the science curriculum for the study of local vector-borne diseases; have students learn about vector behaviour, reproduction, habitat requirements, and the lifecycle of the illness in humans and other species.
- Identify ways students may be exposed to vectors. Have older students research diseases associated with vectors using available research methods.
- Discuss methods to reduce vector populations. Organize efforts to reduce the vector population, such as clearing brush away from the school.

Hazardous materials

*Older students can:*

- Develop an inventory of hazardous substances on school properties. These may include pesticides, fuels, solvents, some cleansers, paints and wall finishes.
- Explore how the use of these substances could be reduced, and search for less toxic substitutes to meet the intended purposes.
- Research proper containment, storage and disposal practices to minimize the potential for human exposure and illness.

Transit and transport

*Older students can:*

- Develop a transportation inventory for the school.
- Document the methods of transit between home and schools for students and staff.
- Examine vehicle use, distance travelled, fuels consumed, and idling behaviour of vehicles.
- Identify accidents associated with transport by type, severity, location and outcome.
- Evaluate routing and control alternatives to reduce vehicle-pedestrian and vehicle-bicycle conflicts.

IV. Placing environmental health education in the school curriculum

Skills-based health education should occur sequentially from primary through secondary levels. It can be taught as a specific subject, as part of other subjects, or as a combination of both. Ideally, it should be part of a comprehensive school health curriculum and integrated into other relevant subject areas.

Integrating environmental health issues within existing curricula on health, natural science, social science and the humanities offers opportunities to consider such matters from multiple perspectives and within multiple contexts. For example, in science lessons, students may learn to use scientific methods to identify and measure environmental threats to their own and others’ health; in social studies, they might compare the magnitude of specific environmental health problems or the nature and efficacy of solutions proposed in different parts of the world; and in humanities they might look at the ethical and rights issues related
to the question of “Whose environment?” Education about the environment can be incorporated into almost any subject, but it should nevertheless also be a core component of the school health education curriculum and a prominent subject in health promotion programmes for staff.

V. Methods and materials for skills-based environmental health education

A variety of educational methods, including lectures, debates, discussions, experiments, hands-on activities, audio-visual aids, and role-plays are effective tools for environmental health education. These methods should be designed to increase knowledge, build positive attitudes and values, dispel myths, increase skills and provide support for a healthy lifestyle. Methods should be selected on the basis of lesson objectives. For example, a lecture is an effective way to increase knowledge but is less effective in influencing beliefs than discussions or debates. In educating students about the physical environment, practical information that will enable students to reduce their exposure to unhealthy environments and create safe and supportive environments should be emphasized.

VI. Training teachers to implement skills-based environmental health education

Teachers need to receive training and information to incorporate effectively issues related to health and the environment in their subject area. Teachers could be provided with information about basic relationships between the environment and health, and with learning materials to make the content interesting to their students. They could also be instructed on how to generate a feeling of responsibility toward the environment. Teachers primarily responsible for health and science education could receive training in implementing a curriculum targeted at health issues related to the physical environment of the school and local community. This training could be continuous and address content and teaching strategies.

All teachers should serve as role models for students by demonstrating responsible classroom management practices. They should be encouraged to keep their classrooms healthy by providing adequate ventilation, cleaning them with non-toxic cleaning products, minimizing/eliminating mould growth, disposing waste properly, and recycling classroom materials.

VII. The student’s role in skills-based environmental health education

Throughout the world, children are the future caretakers of the environment and will become stewards of their own health and that of others. Their knowledge of the environment and their understanding of the relationship between their own health and the environment shape the attitudes children develop toward the environment.

One effective way for students to learn about their environment is for them to become active participants in environmental health education. The child-to-child approach, developed at the Institute of Child Health and Education, University of London is based on the observation that children play a central role in the care of their younger siblings and that traditional knowledge and health practices of villages are passed on from parent to child and from child to child. In the child-to-child model, there are four fundamental ways children can serve as health agents for their communities:

- Older children can help younger ones. Children can be taught how to teach their younger siblings to manage their own health.
Children can learn from others of the same age by doing small projects together.

Children can pass on health messages that they have learned to the larger community.

Children can cooperate to create health actions with their communities.

The child-to-child approach is an effective approach to teaching because:

- It links what children learn with what they do;
- It links what children do in class with what they do in the home;
- The activities are not taught in one lesson and then forgotten; they are learned and developed over a long period of time.

Visit The Child-to-Child Trust website to order materials developed by the organization that deal with environmental issues such as community-wide water and sanitation surveys, action programmes, and solid waste management schemes.

For more information about the child-to-child approach, see the following tools:

- Children for Health: a Methodology for Learning by Doing
- Creating Heath Promoting Schools
- Health across the Curriculum
- Active Methods for Teaching and Learning
- Health Services For and From the School: What Children Can Do

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