



Benefits of Environmental Education

National Environmental Education Week, a project of the National Environmental Education Foundation (www.neefusa.org), is the nation's largest event devoted to environmental learning among K-12 students. Environmental education (EE) is often lauded by educators as an ideal way to integrate classroom curricula, stimulate the academic and social growth of young people, and promote the conservation of the natural environment. Just a few of EE's many benefits are listed below. For ideas on how to bring environmental education and its benefits into your classroom during National Environmental Education Week, log on to www.EEWeek.org.



Studying EE Creates Enthusiastic Students, Innovative Teacher-Leaders

In a world where it is increasingly challenging to get students interested in classroom lessons, EE offers an enriching way for both students and teachers to connect their appreciation of the natural world to academics.

Educators at Pine Jog Environmental Education Center in Palm Beach County have helped 11 Florida schools restructure their curriculum so that they can meet state standards while organizing activities and multidisciplinary teaching units around environmental themes. Why environmental themes? Because children have a natural interest in the environment around them. Interested students are motivated students, and motivation is a key ingredient for academic achievement.

Though the 11 schools have diverse student populations, the results of this restructuring were remarkably similar. Students at these schools are more enthusiastic about learning and perform better academically. Teachers are also more enthusiastic about teaching—they bring more innovative instructional strategies into the classroom and take more leadership in school change.

According to former Palm Beach principal Connie Gregory, “Our students [made] significant improvement in their writing and language arts skills because they were choosing to write about what interested them, which was the environment. . . . Likewise, our teachers are turned on by the new instructional strategies they are using and the improvements they are seeing in their students. And we all know a turned-on teacher is a better teacher.”

Excerpted from:

Archie, M. (2003). *Advancing Education through Environmental Literacy*. Alexandria, VA: Association for Supervision and Curriculum Development.
The National Environmental Education and Training Foundation. (2000, September). *Environment-Based Education: Creating High Performance Schools and Students*. Washington, DC: National Environmental Education and Training Foundation.

EE Helps Build Critical Thinking, and Relationship Skills

Environment-based education emphasizes specific critical thinking skills central to “good science”—questioning, investigating, forming hypotheses, interpreting data, analyzing, developing conclusions, and solving problems. These are the same skills fifth-grade students in Texas teacher Jane Weaver’s class are learning as they use the local and regional prairie environment to learn about science, mathematics, history, social studies, and language arts.

The subject matter is standards-based, but students are learning it by tackling real-world projects instead of by doing workbook exercises. For example, Weaver’s students have restored a prairie, and designed and built a bridge. As a result, students learned more than just the immediate project skills: they’ve developed their thinking and problem-solving abilities. They’ve learned important life skills, such as cooperation and communication. And, as often happens in project-based learning, they’ve found unique opportunities to build relationships.

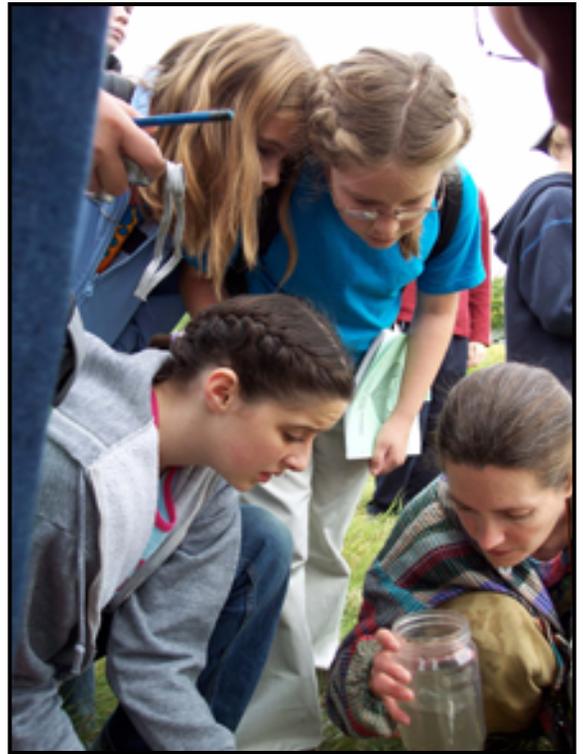
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EE Instructional Strategies Help Foster Leadership Qualities

Environmental education emphasizes cooperative learning (i.e., working in teams or with partners), critical thinking and discussion, hands-on activities, and a focus on action strategies with real-world applications. As a result, students who study EE develop and practice the following leadership skills:

- Working in teams
- Listening to and accepting diverse opinions
- Solving real-world problems
- Taking the long-term view
- Promoting actions that serve the larger good
- Connecting with the community
- Making a difference in the world

The Catalina Leadership program in Catalina, California, and the Adopt-a-Watershed Project in Hayfork, California, are two examples of environment-based education programs that develop leadership skills. In Catalina, fourth- to 12th-grade students gain leadership skills in a natural setting by exploring the complexity of the natural world. In Hayfork, students study watershed conservation to develop skills such as investigation and problem-solving.



Excerpted from: The North American Association for Environmental Education (NAAEE) and The National Environmental Education and Training Foundation (NEETF). (2001). *Using Environment-Based Education to Advance Learning Skills and Character Development*. Washington, DC: NAAEE and NEETF.

EE Makes Other School Subjects Rich and Relevant

Using outdoor settings like wetlands, schoolyard habitats, or even national parks can infuse a sense of richness and relevance into a traditional school curriculum. California’s Heritage Project—a partnership between three school districts and Sequoia and Kings Canyon National Parks—is one example.

Once a week, K–12 students meet with a park ranger to learn about park-related topics, such as forest fire cycles. Frequent park visits to gain hands-on experience are encouraged, creating stronger connections than the more typical once-yearly field trip provides.

The Heritage Project also offers EE classes that combine learning with recreation and exercise. For example, students study river ecology while kayaking, or equine caretaking while horseback riding.

These hands-on experiences motivate students to learn, and they pay off in better test scores, better social skills, and increased parental involvement. The program’s growth testifies to its success: nearly 75% of local students have become involved in the Heritage Project since it was founded, and teachers welcome the educational support from expert staff at participating parks, forests, refuges, museums, zoos, and nature centers.

Excerpted from: The National Education and Environment Partnership. (2002). *Environmental Education and Educational Achievement: Promising Programs and Resources*. Washington, DC: National Environmental Education and Training Foundation.

EE Teaches Students to be Real-World Problem-Solvers

Students at the School of Environmental Studies in Apple Valley, Minnesota, attend high school on the Minnesota Zoo's grounds, and have daily opportunities to hone their problem-solving skills. The "Zoo School" functions as an interdisciplinary learning laboratory that, in the words of Principal Dan Bodette, "... allows kids to do the kind of thinking that problem solving in the real world requires."



The Zoo School's environment-based approach to education lays the foundation for building students' problem-solving skills. Environment-based education employs these key strategies for teaching creative and successful problem solving:

- introducing inquiry-based instructional activities with real-world applications,
- encouraging critical thinking about these activities,
- allowing individual choice about and engagement in the particular problem to be solved,
- helping students make connections between disciplines, and
- fostering independent and cooperative group learning.

For example, students at the Zoo School spend ten days each trimester investigating an independent study topic of their choice. Projects include anything from designing a Web page for the Jane Goodall Institute's Roots and Shoots program to teaching local fourth graders about ecosystems.

Recently, two students profiled a local pond for a themed unit that explored the human/water relationship. They tested the pond water for phosphates, nitrates, and dissolved oxygen so that they could determine the pond's ecological health and recommend improvements to city officials. The students were so involved in the project that they stayed at Kinko's until 2 A.M. preparing the presentations they were delivering to city officials the next day—a not unfamiliar scenario in today's 24/7 workaday world.

Excerpted from: The National Education and Environment Partnership. (2002). *Environmental Education and Educational Achievement: Promising Programs and Resources*. Washington, DC: National Environmental Education and Training Foundation.
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EE Helps Students Become Self-Directed Learners

Sometimes traditional instruction, such as lecturing, is the most practical approach to covering broad content. But when students learn through a problem- or project-based approach—a key strategy in environment-based education—they gain a better understanding of what they learn, they retain it longer, and they take charge of their own learning—key skills for success in our data-driven, rapidly changing world.

A case in point: the experience of a student who moved from a traditional school to one focused on EE. "I've learned a lot more [here] than I ever did at my old school," he said. "There, they spoon-fed you. Here, they leave [learning] up to you, and that makes it easier to learn, and to want to learn more."

An observation by Kathleen McLean, a teacher at Great Falls Public School in Great Falls, Montana, underscores the point: "I take students to places where they can see evidence of [environmental] problems...I am inspired by their creativity and persistence in finding solutions."

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EE Gets Apathetic Students Excited About Learning

Even bright students can be uninterested in learning—especially if they think that what they’re learning is not relevant to their everyday lives. But tap into their interests—for example, as environmental education does, with its emphasis on the living world and hands-on activities—and students suddenly get excited.

Take Daniel, for instance. Daniel was bright, but never turned in his work. His consistent response to any assignment was, “Why do we have to do that?”

One day Daniel’s teacher began a unit on cycles. She started with the cycle that was least familiar—soil minerals—and brought in a bare-bones terrarium that held only soil and earthworms. Students were to add various materials to the terrarium and observe what changed.

Daniel suddenly got interested. He completed assignments, raised his hand to answer questions, and worked with classmates. Every morning before school started, even before the teacher arrived at the classroom door, Daniel was there waiting for her.

He wanted to check on the terrarium and see what was happening, he told his teacher. When she asked why he was so excited about the terrarium, but never got that excited about his other work, Daniel said, “Nobody’s ever asked me to study something like this before!”



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EE Schools Demonstrate Better Academic Performance across the Curriculum

Schools that adopt environmental education as the central focus of their academic programs frequently demonstrate the following results:

- Reading, science, social studies, and mathematics scores improve.
- Students develop the ability to transfer their knowledge from familiar to unfamiliar contexts.
- Students “learn to do science” rather than “just learn about science.”
- Classroom discipline problems decline.
- All students have the opportunity to learn at a higher level.

Hawley Environmental Elementary school in Milwaukee, Wisconsin, is just one example of how an environment-based curriculum can improve students’ academic performance. Reading scores at Hawley exceeded all other schools in Wisconsin that were located in similar income-level areas, and the following year student achievement at Hawley exceeded the state average on state tests and on nationally normed assessments.

Because of these and other achievements, Hawley has since been recognized by the U.S. Department of Education and other organizations as a high-performing school that offers “hope for urban education.”

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EE Is a Perfect Match for Community Service Learning Requirements

Many schools require students, especially middle and high school students, to participate in service learning. Environmental projects are a leading choice for service learning nationwide.

At Pennsylvania's Huntingdon Area Middle School, for example, sixth-grade students study a hands-on, 60-hour, environmentally-based core curriculum. After completing the core course, many students participate in an after-school EE club (Science Teams in Rural Environments for Aquatic Management Studies [STREAMS]) that performs environmental activities to benefit the community.



Students fund all activities by writing and obtaining their own grants. They've become local experts in community stewardship, even educating local citizens, government authorities, and the press about environmental planning and protection. As a result of their service activities, students displayed fewer discipline problems and met with unprecedented academic success. They also formed community partnerships with Pennsylvania organizations such as the League of Women Voters, Juniata College, and the Huntingdon County Conservation District. And parents are now enthusiastic supporters of students' after-school activities.

Similar projects exist at other schools, with similarly positive results. For instance, students at Florida's Dowdell Middle Magnet School built houses for 300 native Floridian toads and created brochures to educate the community about the toads' preferred habitat. This project has increased respect between students and teachers, teachers and parents, and among the students themselves. And students at Four Corners School of Outdoor Education on the Colorado plateau repaired hundreds of miles of trails and roads on public lands. These restoration projects allowed students aged 16–23, 90% of whom are Navajo, to learn job skills, life skills, and environmental stewardship, not to mention a school-district-approved science curriculum.

Excerpted from: The National Education and Environment Partnership. (2002). *Environmental Education and Educational Achievement: Promising Programs and Resources*. Washington, DC: National Environmental Education and Training Foundation.

EE Offers All Students Equal Chances for Academic Success

Environmental educators often find that students who fail in traditional school settings can succeed when the natural outdoor environment becomes the students' classroom. For example, students who learn best by doing can be as successful as students who learn best through lectures and books.

Jeremy, for example, is a high school senior whose writing skills were weak and who admitted that he often had trouble "tying facts together." After Jeremy got involved in the environmental education program at his school, things changed. He had to write a 2400-word paper, complete an action project, and present his conclusions to a community panel. Not only was his paper "awesome," according to this English teacher, but Jeremy went further. On his own initiative, he submitted an editorial based on his research to his state capital's newspaper, and it was published.

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