



National Wildlife Federation's Environmental Educational Programs Can Keep Students Engaged – and In School



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The Problem:

Each year, approximately one-third of all public high school students fail to graduate from public high school. Nearly half of all blacks, Hispanics, and Native Americans fail to graduate from high school with their class. Most of these students quit school with less than two years to complete their high school education.

According to a report by the Center for Labor Market Studies at Northeastern University in Boston, Massachusetts, and the Alternative Schools Network in Chicago, Illinois, nearly 6.2 million students in the United States between the ages of 16 and 24 in 2007 dropped out of high school, fueling "a persistent high school dropout crisis."¹ The total represents 16 percent of all people in the United States in that age range in 2007. Most of the dropouts were Latino or black. The report emphasized the importance of having at least a high school education.

"In the current global economy, having at least a high school diploma is a critical step for avoiding poverty, and a college degree is a prerequisite for a well-paying job," the study says. "The costs of dropping out of high school today are substantial and have risen over time, especially for young men, who find it almost impossible to earn an adequate income to take care of themselves and their families."

The Causes:

According to a 2006 study by Civic Enterprises, *The Silent Epidemic: Perspectives of High School Dropouts*², the decision to drop out is dangerous for the student. They are more likely than their peers who graduate to be unemployed, living in poverty, receiving public assistance, in prison, on death row, unhealthy, divorced, and single parents with children who – in turn – drop out from high school. What's of significant interest is that while students drop out because of significant academic challenges, most dropouts are those who could have - and believe they could have - succeeded in school.

Many high school dropouts expressed great regret for having left high school and also strong interest in re-entering school with students their own age. Most (81 percent) said that graduating from high school was important to success in life, and 74 percent said that if they could do it over, they would have stayed in school. About half said that not having a diploma makes it difficult for them to find a good job.

The study also shows that dropping out of high school is not a sudden act, but rather a gradual process of disengagement, with attendance patterns clearly a sign of a progressing problem.

Drop Outs in 2007:
6.2 million US students between ages 16-24 dropped out of high school
This represents 16% of all people in the US in that age range
60.1% of dropouts are men, ages 16-24
27.5% are Hispanic, including recent immigrants
21% of drop outs are blacks; 12.2% are whites.
California had the most dropouts of any state (710,000 or 14.4%)
Georgia had the highest dropout rate (22.1%)

¹ Center for Labor Market Studies, *Left Behind: The Nation's Dropout Crisis*, May 5, 2009.

² John M. Bridgeland, John J. Dilulio, Jr., Karen Burke Morison, *The Silent Epidemic: Perspectives of High School Dropouts*, a report by Civic Enterprises in association with Peter D. Hart Research Association for the Bill & Melinda Gates Foundation, 2006.

The Strategies:

There are many strategies for keeping students engaged and in high school. Most of these entail providing support systems that can be provided both within the academic environment and also at home that would improve students' chances of staying engaged and staying in school.

In *Helping Students Graduate: A Strategic Approach to Dropout Prevention*³, authors Smink and Schargel describe 15 strategies for keeping kids in school that were identified through nationwide research reviewed by the National Dropout Prevention Center/Network (NDPC/N) at Clemson University. Students in this study reported a variety of reasons for dropping out of school and therefore there must be multi-dimensional solutions to address this problem. The fifteen strategies are: Mentoring/Tutoring; Service Learning; Alternative Schooling; After School Opportunities; Early Childhood Intervention; Family Engagement; Early Literacy Development; Professional Development; Active Learning; Educational Technology; Individualized Instruction; Systemic Renewal; School-Community Collaboration; Career and Technical Education; and Safe Schools.

Other strategies include improving teaching and curricula to make school more relevant and engaging, and enhance the connection between school and work. In *The Silent Epidemic* study, 81 percent of students who dropped out said that there should be more opportunities for real-world learning and some in the focus groups called for more experiential learning. They said that students need to see the connection between school and getting a job.⁴ In addition, building a school climate that fosters academics and makes it interesting was of high interest to 71 percent of the dropouts in the study. Improved communication between parents and schools, strong relationships with at least one adult in the school, and early warning systems were all flagged as strategies that could be used to keep students engaged and in school.

Environmental Education as an Engagement Strategy:

In April 2010, U.S. Secretary of Education Arne Duncan addressed a national conference of art educators on well-rounded students. In his speech he said, "A well-educated student is exposed to a well-rounded curriculum. It is the making of connections, conveyed by a rich core curriculum, which ultimately empowers students to develop convictions and reach their full academic and social potential."⁵

The stakes for pursuing educationally, better rounded student are very high. *New York Times* journalist Thomas Friedman, author of *The World is Flat*, has written that "the school, the state, the country that empowers, nurtures, [and] enables imagination among its students is going to be the winner in the rapidly-evolving global

Why Students Drop Out:

- 47% say a major reason for dropping out was that classes were not interesting*
- 69% said they were not motivated or inspired to work hard*
- 70% said they were confident they could have graduated if they had tried*
- 32% said they had to get a job and make money*
- 26% said they became a parent*
- 22% said they had to care for a family member*
- 35% said that "failing in school" was a major factor in dropping out*
- 45% said they started high school poorly prepared by their earlier schooling*

³ Jay Smink and Franklin P. Schargel, *Helping Students Graduate: A Strategic Approach to Dropout Prevention*, 2004.

⁴ John M. Bridgeland, John J. Dilulio, Jr., Karen Burke Morison, *The Silent Epidemic: Perspectives of High School Dropouts*, a report by Civic Enterprises in association with Peter D. Hart Research Association for the Bill & Melinda Gates Foundation, 2006.

⁵ Secretary of Education Arne Duncan, Duncan, Arne. April 9 2010 speech to Arts Education Partnership National Forum

economy of the twenty-first century.” Nature and outdoor education programs provide a solid and durable platform for stirring the imagination and developing real-world skills in our young people.

The outdoors, whether embodied in a simple schoolyard garden or a wilderness park, offer students and educators opportunities far beyond developing an appreciation for nature. Outdoor education programs can help students of all abilities and backgrounds to become highly effective, high-performance learners.

Environmental Education (EE) and Student Performance

*Higher scores on standardized measures
of academic achievement in reading,
writing, math, science, and social studies*

*Reduced discipline and classroom
management problems*

*Increased engagement and enthusiasm
for learning*

*Greater student pride and ownership in
their accomplishments*

*Class attendance was better 77%
of the time*

Source: Lieberman, G.A., & Hoody, L.L. (1998). *Closing the achievement gap: Using the environment as an integrating context for learning*. San Diego, CA: State Education and Environment Roundtable.

What is a high performance learner? Think of a student who is motivated, curious and even hungry for knowledge. A good learner is creative, a problem solver and has broad perspective, and every problem looks like a puzzle to be solved. A proven way to shape high performance learners is to put them on a learning stage that will invite inquiry and give them interesting, real-world experiences. Instead of a student being solely confined to the classroom, books and lectures, the outdoor world can become a prominent part of his or her schooling. Educational research supports the simple idea that the larger the number of environmental variables we expose children to, the more inventiveness and creativity we will observe (Nicholson, 1973). The outdoors offer significant learning variables and educational benefits that will help our children have happier lives and help society to have an effective and intelligent future workforce.

Though the field of environmental and nature education may have started out teaching children about problems with ecosystems and environmental pollution, educators soon learned that it offered students a richer and much broader educational backdrop. Today, outdoor education is usually based on a “constructivist” approach to learning. This means it focuses on the learner and his or her ability to piece together complex conceptual puzzles. A good outdoor education program will not permit students to sit back and be passive in their learning. Environmental and nature education dynamically combine learning of the underlying science and principles of a subject with significant student-directed assessments and real world applications.⁶

In 1998, a breakthrough study was published by the State Education and Environment Roundtable (SEER) with the support of the Pew Charitable Trusts and twelve state Departments of Education. SEER examined high quality environmental education programs across America. This study assessed student performance in 40 schools that were already implementing a program to integrate environmental education within the school. The study was completed by Roundtable founders Lieberman and Hoody in partnership with 12 State Departments of Education. The data came from site visits to all 40 schools and included four different teacher surveys, interviews with more than 400 students and 250 teachers and school administrators. Moreover, in 14 of the subject schools, the students in the environment-based education programs were compared with students from the same schools who were in traditional classrooms looking at standardized test scores, grade point averages, attendance, student attitude measures, and records of disciplinary actions.

Can planting trees and gardens at school grounds really make an academic difference? Michigan researcher R.H. Matsuoka examined 101 high schools to see if having natural views from windows, eating outside and having

⁶ Hungerford, Harold, I, Ralph Litherland, R. Ben Peyton, John Ramsey, Investigating and Evaluating Environmental Issues and Actions: Skill Development Program, Illinois. (2003)

trees and vegetation in close proximity made a measurable difference in academic achievement, long term learning motivation and behavior. Matsuoka found that the schools in the sample that had larger windows and more views of trees and other natural features also had students with higher standardized test scores, higher graduation rates, and a greater percentage of students planning to attend college. There were also fewer reports of discipline problems and criminal behavior. Importantly, he documented that schools that allowed students to eat outside or off campus had higher test scores and a greater percentage of students planning to attend college. Matsuoka noted that trees and other onsite vegetation needed to be fairly close to the students in order for academic and behavioral benefits to be evident.⁷

It might seem a stretch to say that high school graduation rates could be affected by greening a school's campus but it might also have some value. The Michigan study by R.H. Matsuoka referenced above looked at 101 high schools to see if having natural views from windows, eating outside and having trees and vegetation in close proximity made a difference in academic achievement. One correlation found that the schools in the sample that had larger windows and more views of trees and other natural features also had students with higher graduation rates, with a greater percentage planning to attend college.

One assessment of school performance on the ACT supports this assertion. The ACT college entrance test assesses high school students' educational development and ability to do college-level work. The multiple-choice tests cover four skill areas: English, mathematics, reading, and science. The writing test, which is optional, measures skill in both planning and writing a short essay. See the ACT website for added background. While performance on standardized tests is by no means the sole measure of educational success, there is evidence that performance on the ACT exam can be given a boost through environmental education. At the School for Environmental Studies in Minnesota, for example, a 2000 survey showed that students have exceeded state and national standards and are motivated and self-directed learners. The School for Environmental Studies students scored 24.2 on the ACT, compared to a Minnesota state average of 22.5 and a national average of 21.1. (NEETF, 2000)

Each year, the evidence of how outdoor education and time outdoors support stronger performance on standardized tests increases and becomes more solid and definitive. It shows that, for those who are trying to create well rounded students with superior learning skills, they can also achieve better results when measured against standardized test performance.

NWF's Environmental Education Programs Support Student Engagement:

For more than three decades, the National Wildlife Federation (NWF) has been educating people about the environment and inspiring in them an appreciation of ecosystems and wildlife. We are especially committed to increasing environmental literacy and stewardship among young people and adults and all races and cultural backgrounds. Growing concern over global warming, species extinction, habitat destruction, and other environmental challenges makes it necessary to educate and motivate our next generation to restore and conserve the environment. Our current NWF programs (Eco-Schools USA, Schoolyard Habitat, Be Out There, and Access Nature, and Campus Ecology) and publications (*Ranger Rick*, *Your Big Backyard*, and *Wild Animal Baby*) connect young people to wildlife and nature in ways that are essential to human development and the planet's survival.

NWF's K-12 education programs annually reach over 5,000 K-12 schools and serve nearly 4 million young students through a combination of schoolyard habitat programs, Eco-Schools, curricula, climate education and children's publications. Importantly, some 24,000 K-12 educators and hundreds of school principals are engaged with our

⁷ Matsuoka, R. H., *High school landscapes and student performance*, University of Michigan, Ann Arbor. (2008) This study is also available online at: <http://hdl.handle.net/2027.42/61641>

programs each year. NWF also annually supports the development of improved campus sustainability plans and curriculum reforms for 500 to 1,000 institutions of higher education and has developed a green jobs training program for U.S. community colleges that supports networks of green job trainers coming up to speed on needs and opportunities in the green economy. The Federation's children's periodicals have been nominated three times in the past five years (with one win) as the leading educational periodical in America by the Association of Educational Publishers (AEP), and NWF's Green Hour website was selected as one of the four best educational websites in the U.S. by the AEP.

The Federation also believes that nurturing an ethical concern and caring for the environment and our world in upcoming generations requires large-scale, enlightened programming that directly connects—often for the first time—children to the outdoors. The success of such programs need to be measured by: (1) their scale (i.e., Will they reach enough young people to create societal change for generations to come?); (2) their regularity or degree of repetition (i.e., Will insights and connections be reinforced enough to make lasting impressions?); (3) the variety of media through which we reach children (research shows children use a variety of media and expect the same from educational experiences); and (4) our ability to deliver educationally sound and diverse programs that impact and represent the diverse and multicultural composition of the United States. This type of programming is essential if we are to produce measurable learning improvements and pro-conservation attitudinal shifts through educational, volunteer, and outdoor programming.

In addition to a focus on lasting school reforms, National Wildlife Federation also has an important international EE connection. As the USA host organization for the international Eco-Schools program, NWF has developed a US-based program that supports sustainable schools – Eco-Schools USA (www.eco-schoolsusa.org). These schools are guided by a commitment to shared caring and responsibility for people and the environment and incorporate environmental education into existing curricula so that knowledge and hands-on application fit seamlessly together. We support school programs that involve the entire school community — students, teachers, staff, school management, school boards, parents, civic leaders, general community, and businesses — so as to build understanding of what sustainability means for the school, its students and the community.

The international Eco-Schools program, initiated in 1994, is currently operating in 50 countries, reaching over 37,000 K-12 schools, 600,000 educators, and over nine million students. It has been identified by UNEP as a model program for sustainable development. Eco-Schools utilize a seven step framework that involves establishing action teams comprised of students, teachers, administrators, facility managers, parents, and volunteers who perform an environmental audit of the school, its grounds, and buildings. This audit lays the groundwork for developing action plans that will (1) reduce the overall environmental footprint of the school; (2) educate students and teachers about the environment; (3) integrating and linking EE throughout the curriculum; and (4) communicate these actions and activities to the larger school communities. The environmental focus areas (“pathways”) of the Eco-Schools USA program are: Energy, Water, Transportation, School Grounds, Consumption and Waste, Green Hour, Climate Change, and Global Dimensions. The US-based program, Eco-Schools USA, was launched in November 2009 and is currently in 301 K-12 schools in 38 states plus the District of Columbia. Our Schoolyard Habitat Program was started in 1992 and has 3,600 participating U.S. schools.

Environmental Education (EE) in general, and the Eco-Schools USA and Schoolyard Habitat programs in particular, integrates and overlaps with the majority of the National Dropout Prevention Center/Network (NDPC/N) strategies as illustrated in the chart below:

Basic Core Strategies	What It Means and How NWF’s EE Programs Integrate / Overlap
<p data-bbox="131 640 391 674">Mentoring / Tutoring</p> <p data-bbox="131 745 375 779">Family Engagement</p>	<ul data-bbox="516 178 1490 422" style="list-style-type: none"> • Mentoring is a one-to-one caring, supportive relationship between a mentor and mentee that is based on trust. Tutoring focuses on academics and is an effective way to address specific needs such as reading, writing, or math competencies. • Research consistently finds that family involvement has a direct, positive effect on children’s achievement and is the most accurate predictor of a student’s success in school. <p data-bbox="516 451 1490 724">The Eco-Schools 7-step framework provides a means and purpose for students to engage with caring, supporting teachers, administrators, facilities staff, parents, and community volunteers as part of a “team” that investigates how their school can become more environmentally sustainable. NWF’s Schoolyard Habitat (SYH) program engages schools, students, teachers, and volunteers with hands-on assistance in designing and implementing an outdoor living classroom. Schools with EE programs consistently have higher test scores on state standardized tests and have more support from parents, community, and administration.</p> <p data-bbox="516 745 1490 1186">Family engagement often occurs with both of these NWF programs – students are eager to share their experiences with their families, and parents are eager to participate in hands-on volunteer support as participants in both programs. In a report by Civic Enterprises, <i>“The Silent Epidemic: Perspectives of High School Dropouts,”</i>⁸ seventy-one percent of young people felt that one of the keys to keeping students in school was to have better communication between the parents and the school, and increasing parental involvement in their child’s education. Eco-Schools’ Eco-Action Teams are comprised of students, teachers, administrators, parents, and volunteers. Parents are a key component of the process and framework – whatever the child learns at school can be shared with his/her family and a positive feedback loop is formed: Interest – Engagement – Lifelong Learning.</p>
<p data-bbox="131 1522 332 1556">Service Learning</p>	<p data-bbox="516 1283 1490 1417">Service learning connects meaningful community service experiences with academic learning. This teaching/learning method promotes personal and social growth, career development, and civic responsibility and can be a powerful vehicle for effective school reform at all grade levels.</p> <p data-bbox="516 1438 1490 1543">One of the key “Steps” to becoming an award-winning Eco-School is to engage in the community in a meaningful, instructive way. An example from “Learn and Serve” illustrates this point perfectly:</p> <p data-bbox="516 1564 1490 1766">If school students collect trash out of an urban streambed, they are providing a service to the community as volunteers; a service that is highly valued and important. On the other hand, when school students collect trash from an urban streambed, then analyze what they found and possible sources so they can share the results with residents of the neighborhood along with suggestions for reducing pollution, they are engaging in service-learning.</p>

⁸ John M. Bridgeland, John J. Dilulo, Jr., and Karen Burke Morison, “The Silent Epidemic: Perspectives of High School Dropouts,” A report by Civic Enterprises in association with Peter D. Hart Research Associates for the Bill & Melinda Gates Foundation, March, 2006.

	<p>Through service-learning, students are providing an important service to the community and, at the same time, learning about water quality and laboratory analysis, developing an understanding of pollution issues, learning to interpret science issues to the public, and practicing communications skills by speaking to residents. They may also reflect on their personal and career interests in science, the environment, public policy or other related areas. In these ways service-learning intentionally combines service with learning, a combination that is transforming both communities and students.⁹</p>
<p>Early Childhood Education</p> <p>Early Literacy Development</p>	<ul style="list-style-type: none"> • Birth-to-five interventions demonstrate that providing a child educational enrichment can enhance brain development. The most effective way to reduce the number of children who will ultimately drop out is to provide the best possible classroom instruction from the beginning of their school experience through the primary grades. • Early literacy interventions to help low-achieving students improve their reading and writing skills establish the necessary foundation for effective learning in all subjects. <p>The Eco-Schools USA program engages K-12 schools, and in some instances, we have registered Pre-K and home schools as well. No matter what grade, all children deserve to have exposure to nature through the outdoors, and the development of critical thinking and analytical skills that are bolstered by environmental education. Eco-Schools’ has lesson plans and activities that run the gamut of elementary and secondary grades.</p> <p>Additionally, NWF’s award-winning nature education publications are written for children ages 2-12 and are based on “Excellence in Environmental Education Guidelines for learning” by the North American Association for Environmental Education as well as the National Science Educational Standards from NSF. Our publications provide natural science information that focuses on the characteristics, basic needs, habitat, and/or life cycle of different plants and animals. They support early emergent readers by providing stories and activities that foster print awareness, sound-letter correspondence, letter formation, vocabulary building, picture reading, and story discussion.</p>
<p>Active Learning</p> <p>Educational Technology</p>	<ul style="list-style-type: none"> • When educators show students that there are different ways to learn, students find new and creative ways to solve problems, achieve success, and become lifelong learners. • Technology offers some of the best opportunities for delivering instruction that engages students in authentic learning, addresses multiple intelligences, and adapts to student’s learning styles. <p>Whether utilizing experiential outdoor classrooms or through the application of the Eco-Schools action team’s process at the school, students are actively engaged in auditing their school’s environment and subsequently devising and implementing action plans that allow them to engage in authentic learning and solutions. Eco-Schools USA is working with NASA on developing a cross-</p>

⁹ Learn and Serve. <http://www.servicelearning.org/what-service-learning>

programmatic climate change science curriculum for middle and high school students that utilizes such interesting, experiential technology and tools such as Science on a Sphere, RETScreen, and Google Earth. Exposing students to the endless possibilities, allowing them to develop technical skills while learning basic science, math, and reading skills gives them both an incentive to stay in school as well as a firm foundation for when they enter the job market.

- When all groups in a community provide collective support to the school, a strong infrastructure sustains a caring environment where youth can thrive and achieve.
- A quality guidance program is essential for all students. School-to-work programs recognize that youth need specific skills to prepare them for the larger demands of today's workplace.

School-Community Collaboration

The larger school community is engaged with both Eco-Schools USA and Schoolyard Habitat programs – they are an integral part of the teams that work collaboratively with students, educators, and administrators to effect an environmental education change at the K-12 school.

Career and Technical Education

There are many options for high school students today – and they don't all involve 4-year colleges and universities. Through NWF's Campus Ecology Community College/Green Job training program, we work with community college associations and job training organizations on a series of programs designed to facilitate US community colleges in becoming effective green job training hubs in over 1,000 communities across America.

In addition, we are currently building out "Student Pages" on our Eco-Schools USA website that will have career tracks, resources, and other important information for careers in the STEM-related and/or conservation/environmental fields as well as technical education through our Campus Ecology Green Jobs Training programs.

After School Opportunities

Many schools provide after school and summer enhancement programs that eliminate information loss and inspire interest in a variety of areas. Such experiences are especially important for students at risk of school failure.

Eco-Schools can be operated as both an in-school and after-school program. An example of an after-school Eco-Club would be one in which students learn general environmental concepts such as what is conservation, what is a watershed, using resources wisely, and environmental ethics. This fits within the 7-step framework of an Eco-School. During this time, they also learn about and do a stewardship project focused on recycling and composting, which addresses one of the Eco-Schools Pathways, Sustainable Consumption and Waste. There are many opportunities for after-school engagement of students which has the multiple benefits of engaging young people in safe, structured and productive after-school and weekend activities which develop an ethic of service and personal responsibility. In other words, *"Kids with someplace to go, end up...going places!"*

For More Information about NWF's Environmental Education Programs:



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