

Academic Benefits

ADDRESSING THE ACADEMIC NEEDS OF SCHOOL ADMINISTRATORS AND EDUCATORS AND PLANTING SEEDS FOR A MORE SUSTAINABLE FUTURE

When integrated into core curricula or used as an integrating theme across curriculum, environmental education has a measurably positive impact not only on student achievement in science, but also in reading, math, and social studies.

Here's a few studies of how student academic achievement benefitted from the inclusion of environmental education:

 **Improved Reading Literacy**—Many people naturally associate environmental education and improved understanding of science. But environmental education also contributes to the development of basic skills including reading. One elementary school employed environment based education for this purpose. Bagley Elementary School in Washington state employed the Environment as an Integrating Context (EIC) and then measured performance on reading scores on the Iowa Test of Basic Skills. Bagley found that the EIC students' Iowa Test scores rose from an average of 44 to 53 among students in the environment-based program.

Source: Lieberman, Gerald A. and Hoody, Linda (1998). Closing the Achievement Gap. San Diego, CA: State Education and Environment Roundtable (<http://www.seer.org/>)

 **Improved Math Literacy** — The Maryland Association of Environmental Outdoor Education reports that students interested in learning increased when they engaged in authentic environmental investigations on school grounds and in their communities. Statewide test scores rose, too. Maryland Green School 8th grade students had 5.1% higher averages in mathematics than non-green schools. A 2000 case study of schools in North Carolina with environment-based programs shows that 4th grade students achieved a 31% point increase in math achievement in just one year.

Source: Maryland Association of Environmental Outdoor Education; NEETF, 2000, National Scope

 **Improved Science Achievement and Attitudes Towards Learning** — Fifth grade students who participated in school gardening activities scored significantly higher on science achievement tests than students who had a curriculum without garden experiences. Evaluations of the Junior Master Gardener program in Indiana and Louisiana also found greater science achievement gains among gardening students compared to control groups. Gardening activities can be integrated into all areas of the school curriculum, making learning more meaningful. Parent involvement, shown to enhance student achievement increases at schools with garden programs.

Sources: Klemmer, Waliczek, & Zajicek, 2005; Dirks & Orvis, 2005; Smith & Motsenbocker, 2005; Canaris, 1995; Henderson & Mapp, 2002; and Alexander, North, & Hendren, 1995.

 **Improved Critical Thinking Skills** — Environmental education is also associated with improved critical thinking skills. A study of 401 Grade 9 and 12 students from 11 Florida high schools found a strong positive correlation between participation in environmental-education program and higher achievement on tests that measure critical thinking. Environmental-education students scored 4.33 points higher on the Cornell Critical Thinking Test than students in the control group.

Source: J. Ernst & M. Monroe, "The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking". *Environmental Education Research*, 10(4), (2004).

 **Improved Student Behavior and Attitudes** — The Pacific Education Institute's *Environmental Education Assessment* (2004) project compared 77 pairs of demographically equivalent schools across Washington State: one with environmental education (EE) integrated throughout the grades and curriculum and a matching school without EE. Schools with EE programs consistently showed higher test scores on state standardized tests in math, reading, and writing, and more support from parents, community and administration. Young people exposed to EE tended to improve their overall GPA, stay in school longer, receive higher than average scholarship awards, and display more responsible behavior in the school and community. Schools with as little as 20% of the teaching staff involved with EE showed statistically higher standardized test scores and more students who met state standards.

Source: 2004 Report Card on the Status of Environmental Education in Washington State

For more information on the academic benefits of environmental education, please visit our blog at:
<http://blog.nwf.org/tags/eco-schools-usa/>

“When I taught the kids math skills like measuring, in the classroom, they forgot it and couldn't make use of it. When the students had a chance to use these skills on our nature trail, they not only learned better but could apply and remember their math skills longer.”

Kim Flynn, Math Teacher,
Jackson County Middle School,
Kentucky