



Policy Paper, Series 1, No. 1

**Bringing Nature into Education:
Policy Options for Increasing the Potential for
Learning in Nature in Ontario**

Executive Summary

Ontario's Back to Nature Network is a growing and diverse group of organizations uniting to build capacity to connect children and nature in ongoing and meaningful ways through awareness-raising, the creation of resources, and the development of policy. Through policy development, the Back to Nature Network aims to positively influence policies and programs at the provincial and local level that will inspire decision makers to broaden and enhance the opportunities Ontario's children have for learning and playing in nature.

Research strongly supports the link between the healthy child development and time spent in nature. A large and diverse body of evidence reinforces the conclusion that children who regularly spend time outdoors in natural settings have diminished risks of some chronic diseases, reduced stress levels, enhanced emotional well-being, increased ability to focus and learn, and improved fitness levels. At the same time, research shows that children are spending less and less time outdoors. The average Canadian child spends close to eight hours a day in screen-based time¹. Clearly, it is time to replace "screen time" with "green time."

In Ontario, children are in school for over six hours of their waking time each day over the course of a 194-day school year, an enormous part of every child's developmental years. There are direct curricular links for outdoor-based learning activities to be integrated and embedded in education in all grades to the benefit of all. Research has demonstrated the positive impacts of outdoor learning on student behaviour and academic achievement, as well as teacher satisfaction and morale. The purpose of this paper is to outline a wide range of policy and program options that exist at the provincial level within the Ministry of Education, the Ministry of Training, Colleges and Universities and local Boards of Education. This document outlines short and long range opportunities that will have a positive effect on the health, wellbeing and learning outcomes of Ontario's children, and is intended to stimulate discussion and strategic planning on the importance of learning in nature.

¹ Active Healthy Kids Canada 2012 Report Card

Policy Options

- 1. Increase opportunities for learning and play in nature for all Ontario students.**
 - 1.1. Support the outcomes of the *Acting Today, Shaping Tomorrow - Policy Framework for Environmental Education in Ontario Schools (Policy Framework for EE)* by creating a companion guide or resource that provides strategies and principles for teaching and learning outdoors in nature in all subject areas and in all grades, and helps teachers to integrate outcomes across the curriculum.
 - 1.2. Endorse *Into Nature*, the Back to Nature teacher's guide, and facilitate its distribution to Ontario's elementary teachers.
 - 1.3. Provide opportunities for training for both in-service and pre-service teachers and early childhood educators that will provide them with the knowledge, skills and tools so that they can confidently and effectively teach outdoors in nearby nature.
 - 1.4. Endorse the *Ontario Children's Outdoor Charter*, and encourage and support Boards of Education to do the same.

- 2. Increase access to nearby nature and opportunities for physical activity in green space in order to improve the health and wellbeing of students and the larger community.**
 - 2.1. Investigate, support and promote the concept of forest preschools and kindergartens in Ontario.
 - 2.2. Recognize the health and developmental benefits of outdoor classrooms, gardens and naturalized areas for students, and support their creation at every school and daycare facility so that nearby nature can be readily available to all children, and make this one of the foundations of the Healthy Schools Framework.
 - 2.3. Within the regulatory framework for licensed childcare providers, establish clear guidelines for licensed childcare providers that promote, safe outdoor play and learning in nature.

Background

About the Back to Nature Network

In November 2008, Royal Botanical Gardens (RBG) hosted a Back to Nature conference and produced a “Back to Nature Event and Workshop Report”, which outlined short and long-term actions to create an Ontario movement to re-connect children and nature.

Supported by funding from the Ontario Trillium Foundation, the Network, led by RBG in collaboration with Ontario Nature and Parks and Recreation Ontario, has established a two-year work plan through July 2013 that will increase the capacity of organizations and educators to connect children, their families and communities to nature in a meaningful and sustained way through advocacy, education and the development of resources.

The Network now contains over 85 organizations that endorse the Network’s positioning statement:

A connection to the natural world is fundamental to all aspects of child development and is a key component to building optimal mental, emotional, social and physical health for every child. This critical link also represents a key building block for the future of a sustainable society.

Research shows that when we foster a child’s connection with nature, the child flourishes: child obesity decreases, bullying rates decrease, child injury rates decrease, while academic achievement rises, physical activity rates increase, attention spans improve, physical and cultural barriers melt away and environmental stewards of the future emerge.

More work needs to be done by our governments, our educational institutions, our communities, our families and individuals to develop and support the natural spaces and initiatives necessary for our children to thrive and the research to guide us as we make these important changes. Connecting our children to nature needs to be a provincial and national priority.

The undersigned are united in their concern about the present and future implications of this issue on the health of our children, our society and our environment.

The Network has hosted two policy development workshops, engaging stakeholders from education, environmental NGOs, recreation, parks, health, planning and government. The result of these consultations has led to the development of a series of policy papers focused on the themes of education, health, planning and development and nature in communities, under the umbrella of the new Ontario Children’s Outdoor Charter.

Learning in Nature for Healthy Child Development

Technology and rapid change mean that our children's lives are significantly different than their parents' lives. In just two generations, our children have become more connected to the virtual world than the natural world. We are now seeing the consequences of our changing society in increased rates of obesity and the early onset of some types of chronic diseases such as Type 2 Diabetes. Children spend less time walking, exploring and being connected with nature within our cities and towns, as natural and naturalized landscapes are often isolated and difficult to access.

The result has been described as "nature-deficit disorder", a term coined by Richard Louv in his influential book *Last Child in the Woods*. Its publication in 2005, combined with a rapidly growing body of peer-reviewed research on the impact of regular exposure to nature on human health and wellness, has sparked enormous interest in the critical importance of having a meaningful connection with nature in childhood. Nature and environmental advocates have long intuitively felt that contact with nature is important. There is now a body of scientific evidence that supports this and clearly merits the attention of policy makers.

In 2010, an important research paper was released in the US by the National Recreation and Park Association. *Parks and Other Green Environments: Essential Components of a Healthy Human Habitat*² by Dr. Frances E. (Ming) Kuo presents compelling evidence that frequent access to natural, green spaces has an important role to play in human health.

Of the more than 100 scientific and medical studies that Dr. Kuo examined, she found overwhelming evidence that access to nature not only improves quality of life but it also improves health outcomes. Specifically, regular interaction with nature is a protective factor: children who learn and play regularly in nature have lower incidence of negative issues such as aggressive behaviour and lack of self-control (both indicators of poorer outcomes at school) and have better overall mental and physical health and improved learning outcomes.

Dr. Kuo sites numerous studies that show that initiatives such as school landscaping enhancements and outdoor education curricula improve standardized test scores. Her own research on public schools in Chicago found that schools surrounded by more green space had consistent and measurably higher test scores. Other researchers have found reduced bullying and increased staff morale in schools with naturalized landscapes where children can access nature each day. While school greening is both desirable and effective, there is more that can be done to increase our children's connections with nature in their neighbourhood. Learning in nature is another cost-effective method that improves learning outcomes for children and helps teachers deliver the Ontario curriculum in an efficient and enriching way. It also contributes to a sustainable society by laying the foundation for lifelong environmental stewardship.

² Kuo, Frances E. (Ming). *Parks and Other Green Environments: Essential Components of a Healthy Habitat*. National Recreation and Park Association, 2010. healthybynature.ca/downloads/paper-Kuo-NRPA2010.pdf. Accessed April 2012.

Ontario's *Acting Today, Shaping Tomorrow Policy Framework for Environmental Education in Ontario Schools* outlines important principles for teaching children about complex global environmental issues. It is an important document for educators. However, in order for children to learn to truly care about the environment and become active environmental citizens, they first need the opportunity to get to know it, by making personal hands-on connections with nature. Learning can be enhanced through teaching more subjects *in* nature, and research shows the benefits that result. The following policy options outline actions that will enhance the existing Ontario curriculum and improve student outcomes through teaching in nature.

Policy Considerations

The Government of Ontario has already recognized the importance of environmental education. Two significant policy papers³ present a compelling vision and framework for environmental education. Specifically, the Back to Nature Network applauds the definition of environmental education stated in the 2007 *Shaping Our Schools, Shaping Our Future* document:

*Environmental Education is education about the environment, for the environment, and **in the environment...***

It is this last facet of the definition which is especially important. While the Policy Framework for EE indicates that teachers should take students outside, it does not require it. Expectations from every subject area can be met outdoors but in this day of enhanced AV accessibility, it is quite possible for teachers to meet the current curriculum expectations without ever leaving the classroom. The Back to Nature Network believes that there are some cost-effective steps that can be taken to enhance existing environmental education by learning in nature, and we commend the Ministry of Education initiative in offering financial support for outdoor field trips in the 2012/13 school year. It is recommended that this funding will continue to be available, and that professional development will also be provided to help teachers to become more confident in teaching in nearby nature so that they can take their students outdoors on a consistent basis. We also have several other recommendations to meet two strategic objectives: increase opportunities for learning in nature, and for regular access to nature for learning and physical activity.

³ *Shaping our Schools, Shaping our Future* (2007). *Acting Today, Shaping Tomorrow* (2009).

Objective 1

Increase opportunities for learning and play in nature for all Ontario students.

Rationale

The first goal of the Environmental Education Framework states that by Grade 12, students will acquire knowledge, skills, and perspectives that foster understanding of their fundamental connections to each other, to the world around them, and to all living things. The strategies in the framework and the accompanying Standards for Environmental Education in the curriculum do support learning in all subjects in nature.

However, research and public and professional consultations held by the Back to Nature Network show that barriers still exist to teaching and learning in nature. The following strategies offer opportunities for the Ministry of Education, the Ministry of Training, Colleges and Universities, the Ontario College of Teachers, local school boards, schools and teachers to enhance the outcomes of the Framework.

Strategy 1.1

Support the desired outcomes of the Acting Today, Shaping Tomorrow - Policy Framework for Environmental Education in Ontario Schools (Policy Framework for EE) by creating a companion guide or resource that provides strategies and principles for teaching and learning outdoors in nature in all subject areas and in all grades, and helps teachers to integrate outcomes across the curriculum.

A companion guide or document, developed in collaboration with members of the Back to Nature Network, would support the existing Policy Framework by addressing specific barriers to teaching and learning in nature. It would provide more specific and updated information on how to teach all subjects in nature. Ontario's *Ready, Set, Green!* resource is an excellent example of a compendium that could be updated and enhanced for Ontario teachers, principals and parents. The Back to Nature Network and its members would support the implementation and dissemination of the guide.

Strategy Cost: Low Impact: Medium Timelines: 12-18 months

Strategy 1.2

Endorse *Into Nature*, the Back to Nature teacher’s guide, and facilitate its distribution to Ontario’s elementary teachers.

Developed by the Back to Nature Network in collaboration with the Halton District School Board and stakeholders from the Ministry of Education and Ontario EcoSchools, the Back to Nature teacher’s guide, *Into Nature*, was developed to support the current EE Policy Framework and also would support any new companion guide for teaching and learning in nature. Targeted at elementary school teachers, it is available as a free download in both French and English on our website.

By endorsing *Into Nature*, the Ministry of Education will inform school boards of the availability of the guide as a free teacher resource.

A similar guide to outdoor experiences for Early Childhood Education is also in development, scheduled for release in 2014.

Cost: \$0 Impact: Medium Timeframe: Immediately

Strategy 1.3

Provide opportunities for training for both in-service and pre-service teachers and early childhood educators that will provide them with the knowledge, skills and tools so that they can confidently and effectively teach outdoors in nearby nature.

This strategy builds on the tools, resources and training currently available in Ontario and other jurisdictions. Teachers report that they feel ill-equipped to take children outdoors for curriculum delivery. Most do not receive training during their pre-service program as outdoor education courses are now an optional part of the program that require an additional tuition fee. This issue was raised during the 2011 fall election, and in response to an election platform circulated by the Back to Nature Network, the Liberal Party indicated that, “Together with our education partners, we will develop a program for training teachers in outdoor education and work with Ontario’s faculties of education to make sure that our teachers have the skills and knowledge they need to incorporate nature into their teaching.” By supporting and promoting the delivery of training and the dissemination of resources, the Ministry of Education and the Ministry of Colleges, Universities and Training, along with the Ontario College of Teachers, would be directly supporting teachers to help them improve student outcomes through learning in nature.

The Back to Nature Network recognizes the Ministry's need to have evidence-based approaches to learning. The Network is ideally placed to help the Ministry create a menu of options that both support current curriculum expectations and are based on scientific evidence that will enhance learning outcomes.

Strategy Cost: Variable Impact: High Timelines: 18-24 months

Strategy 1.4

Endorse the Ontario Children's Outdoor Charter, and encourage and encourage all Boards of Education to become endorsees.

The Back to Nature Network and Ministry of Natural Resources, along with the Ministry of Culture, Tourism and Sport, have collaborated on the development of an Ontario Children's Outdoor Charter that is focused on raising awareness of the need for children to spend more time outdoors in all facets of their lives. Due to be released in 2013, the Charter outlines simple activities that should be fundamental to the life of any child in the Province of Ontario, many of which can be integrated into their school experience.

Strategy Cost: Low Impact: Medium Timelines: 6 months

Objective #2

Increase access to nearby nature and opportunities for physical activity in green space in order to improve the health and wellbeing of students and the larger community.

Rationale

Many studies⁴ have revealed that cognitive function is increased when children have access to green, natural spaces. For example, in a study of Illinois standardized test scores, Dr. France (Ming) Kuo looked at a cross-section of more than 450 schools. Her research team classified schools by the amount of green space on and surrounding the property and matched that with test scores over 10 years. More than 500,000 students were involved, and 1.7 million test scores tracked. Other factors such as gender, grade, ethnicity, income etc. were also factored into the analysis of the results. In every measure, schools with more green space achieved higher test scores overall. In addition, schools that underwent a greening process were also studied and in all cases, schools that added and improved the quality of the school green space also experienced a rise in test scores. The results showed that ALL students benefited but that disadvantaged students (for example, from low income, bilingual homes etc.) benefitted the most.

There are two factors to consider when looking at the effect of green space on learning. Firstly, as Ulrich and others have shown, even views of nature from a window reduce stress and improve people's ability to concentrate⁵. Secondly, children are more likely to engage in more prolonged, creative, and non-combative play, in areas with more vegetation⁶.

There is no doubt that improvements to schoolyards, through the creation of naturalized habitat, school gardens and outdoor classrooms, has tremendous potential to improve student outcomes and health and wellness. Excellent "how to" resources exist through organizations like Evergreen, and while Canada is seen as a leader in the movement to green school grounds, Ontario's school boards vary greatly in their commitment to enriching and using their school property for learning. The Back to Nature Network therefore makes the following recommendations:

⁴ Abrams, K.S. (1999). [Summary of project outcomes from Environmental Education and Sunshine State Standards schools' final report data.](#) Accessed 2012. And http://www.fs.fed.us/ucf/supporting_docs/schools-kuo.pdf

⁵ Wells, N.M. (2000). At home with nature: Effects of "greenness" on children's cognitive functioning. *Environment and Behavior* 32: 775-795. And Hartig, T., Mang, M., & Evans, G.W. (1991). Restorative effects of natural environment experiences. *Environment and Behavior* 23: 3-26.

⁶ Faber Taylor, A., Wiley, A., Kuo, F.E. & Sullivan, W.C. (1998). [Growing up in the inner city: Green spaces as places to grow.](#) *Environment and Behavior* 30(1): 3-27.

Strategy 2.1

Investigate and promote the concept of forest kindergartens and nature preschools in Ontario.

A long-established component of the public education system in some European constituencies, forest preschools and kindergartens provide a learning environment in which children are outdoors in natural settings for most of their school day, year-round. Research has shown enhanced outcomes in measures of social, intellectual, behavioural and creative capacity of the children who have completed their early years in this type of program. Some pilot programs have been established in Canada in recent years and this movement deserves the attention of Ministry and school board staff.

Strategy Cost: Variable Impact: Low Timelines: 12-18 months

Strategy 2.2

Recognize the health and developmental benefits of outdoor classrooms, school food gardens and naturalized areas for students and require their creation at every school and daycare facility so that nearby nature is accessible to all of Ontario’s children, and make this one of the foundations of the Healthy Schools Framework.

Ontario’s own *Green Schools Resource Guide* is an excellent resource for planning and building more environmentally sustainable schools. However, more can be done to support schools that wish to retrofit or renovate their outdoor space to increase access to greener and more naturalized spaces. Again, there are useful resources available, but coordinated guidelines and direction from the Ministry would help schools navigate the pathway to a greener, more natural landscape that has better value for enhanced child development and educational purposes. In addition, promoting more naturalized areas with native plants will foster environmental connection and stewardship, as children will learn and interact with nature in a way that promotes an understanding of the world around them. Providing students with a variety of play areas will also increase creative play and physical activity within the space. There are also excellent resources available that demonstrate the benefits of school gardening and its role in promoting healthier eating habits as well as environmental connection. The concept of the “outdoor classroom” can provide infrastructure for this as well as cross-curricular education. Outdoor classrooms make it easier for teachers to transition students between indoor and outdoor learning, providing shaded seating areas with work tables in the context of naturalized habitat and/or food gardens. An outdoor classroom is a cost-effective way to enhance student health and wellness at the same time as improving academic outcomes; just as all schools have gymnasiums, all schools should have an outdoor classroom space.

Strategy Cost: Variable Impact: High Timelines: 18-48 months

Strategy 2.2

Within the regulatory framework for licensed childcare providers, establish clear guidelines for licensed childcare providers that promote, safe outdoor play and learning in nature.

Similarly, now that the Ministry of Education has responsibility for the Day Nurseries Act, there is an opportunity to provide guidelines to licensed child care providers on setting policies for quality outdoor time, and enhancing fenced play yards to enhance their natural attributes. This would be timely as the Back to Nature Network is currently collaborating with Humber College’s Early Childhood Education program on a companion guide to *Into Nature*, specifically for early childhood educators.

Cost: Low Impact: High Timeframe: 18-24 months

Recommendations

The Back to Nature Network recommends that the Government of Ontario engages stakeholders and experts to maximize investments currently being made and leverage other tools and resources. An incremental approach to increasing student access to learning in nature will be essential in order to be able to ensure sustainable programs are established and Ministry objectives are achieved.