

Why environmental education: Moving environmental education from the margins to the mainstream of K-12 education in Alberta

DRAFT – FOR REVIEW



The Big Picture: Environmental education helps create a sustainable future.

The health and wellness of Albertans rely on a healthy environment. Environmental education helps Albertans develop the knowledge, skills, attitudes and behaviours to practice environmental stewardship and meet their present-day needs without compromising the wellbeing of future generations. It is a vital strategy to ensure people understand the interconnections between environment, economy and society – a key requirement for a society that wishes to create a sustainable future.

Humanity can have neither an economy or social well-being without the environment... It is the foundation of any economy and social well-being that humanity is fortunate enough to achieve.¹

The benefits of environmental education in K-12 curriculum

Below we list seven research-based benefits of including environmental education in K-12 curriculum. **Environmental education...**

- **Supports the new curriculum.** Environmental education is a perfect vehicle to deliver the new curriculum. It already does what the new curriculum will be outlining for teachers: it promotes cross-curricular learning that is focused on competencies that help students become ethical citizens, engaged thinkers with an entrepreneurial spirit.²
- **Improves academic performance** – student achievement in reading, writing, math, science and social studies increases when the environment is used as an integrating context.³ Student exposure to natural features increases standardized test scores and graduation rates.⁴
- **Improves the development of core skills** – supports skills such as observation, problem-solving, reasoning, categorizing, creativity, imagination, and risk-identification.^{5,6} Environment-based education improves critical thinking.⁷
- **Connects to community and real-world applications.** Environmental education allows students to see the ‘big picture’ by integrating many subjects in a cross-curricular approach, and can help students see real-life connections to their learning - particularly when connected to the local community.⁸
- **Increases student engagement and enthusiasm for learning** – environmental education increases student engagement and enthusiasm for learning, and reduces absenteeism and disruptive behaviour.⁹
- **Encourages healthy lifestyles** – activities in nature help lower blood pressure, strengthen the immune system, reduce stress levels, and help maintain physical, mental and emotional well being.^{10,11} Access to green space helps reduce obesity.¹²
- **Contact with nature supports healthy child development and supports a lifelong relationship with nature** – time spent in nature leads to healthy childhood development in three domains: cognitive, social and emotional.¹³ Students’ experiences with nature help create a lifelong relationship that supports stewardship.¹⁴

“In a poll of over 800 Alberta households conducted by Ipsos Reid for the Alberta Council for Environmental Education, 75% of Albertans agreed that schools in Alberta should give top priority to provide students with opportunities to engage in environmental action projects.”

- Poll conducted by Ipsos Reid for ACEE, 2009



What is environmental education and environmental literacy?

All children have a natural affinity with nature, as they connect with the joy, wonder and beauty of the natural world. Environmental education is the learning process that builds on this natural affinity to create environmentally literate citizens. Environmental literacy has three elements:

- Interdependence – understanding the interconnections and interdependence between ecological and social systems and the impact on personal and collective well being
- Diversity – valuing the significance of biological and cultural diversity as well as diverse perspectives
- Responsibility and citizenship – furthering society by investigating, evaluating, designing, creating and implementing ideas for a sustainable future

Environmental education ‘prepares all citizens with essential skills that contribute to healthier, more environmentally sustainable and economically prosperous communities.’ (North American Association for Environmental Education NAAEE, 2008)

“Given the vulnerable state of our natural world, we need a different approach to education. Education that nurtures children’s innate curiosity about the natural world, that fosters their understanding of the interconnectedness of all living and non-living things, and instils in them an abiding sense of care and responsibility for the well-being of our communities and planet Earth.”

- Dr. David Orr

Environmental Education embraces many topics – including energy

- In Alberta, “energy and environment are two sides to the same coin.”¹⁵ Our work to help create a sustainable future for Alberta needs to embrace both environmental education and energy education – this is sometimes called ‘education for sustainable development.’
- Energy education and environmental education must advance in lockstep, in a way that links, relates, and finds synergies in these two areas.
- We define an energy literate person as someone with the requisite knowledge, skills, and attitudes to make sound decisions that involve energy as it relates to environment, society, and economic factors – both in the short term and in the long term. This relates to Alberta Education’s literacy definition, which holds that “...today’s learners must develop expertise with a wide range of skills and strategies to acquire, create, connect, and communicate meaning in an ever-expanding variety of contexts.”¹⁶
- Energy literacy is an outcome; energy education is the process that increases the learner’s energy literacy.



“Most of the students that come to me in high school already feel discouraged and helpless about this issue: they’ll say, “Mr. Robb, there’s nothing we can do about climate change, it’s hopeless.” When it comes to environmental stewardship, Alberta is failing its youth.”

- Adam Robb, Teacher, Cochrane High School

Our offer

ACEE and the environmental education community have developed:

- Curriculum-ready articulation of environmental education scope & sequence, key concepts and subject and grade learning outcomes to support prototyping
- Classroom-ready assessment tools, teaching and learning resources, and teacher support to implement new curriculum
- A research-based Environmental Education Framework that includes competency indicators organized in three themes to achieve cross-curricular competencies, and an overview of assessment

Our Ask

To improve K-12 education in Alberta, to create a sustainable future, and to move environmental education from the margins to the mainstream, we ask prototyping partners to develop new curriculum that...

- Embraces and integrates environmental education as a cross-curricular vehicle into all new programs of study for the six core subjects using the three themes of environmental stewardship – interdependence, diversity, responsibility and citizenship
- Encourages the relevant activities and skill development opportunities:
 - supports inquiry learning, integrated learning and experiential learning
 - promotes learning in the outdoors using green spaces in school yards, local green spaces and provincial natural spaces
 - encourages student-centred activities that allow them to practice citizenship and other skills



References

- ¹ Dawe, N.K., and Ryan, K.L., 2003. The faulty three-legged-stool model of sustainable development. *Conservation biology* 17(5). pp. 1458-1460
- ² Alberta Education Ministerial Order on Student Learning (#001/2013)
<http://education.alberta.ca/department/policy/standards/goals.aspx>
- ³ Lieberman & Hoody 1998; Bartosh 2003; SEER 2000 and 2005; NEETF 2000
- ⁴ Matsuoka, R. 2008. *High School Landscapes and Student Performance*. Ann Arbor, MI: University of Michigan
- ⁵ Fjortoft, I. 2001. The natural environment as a playground for children: the impact of outdoor play activities in pre-primary schoolchildren. *Early Childhood Education Journal* 29(20). pp 111-117
- ⁶ Pyle, R. 2002. *Eden in a Vacant Lot: Special Places, Species and Kids in Community of Life*. Children and Nature: Psychological, Sociocultural and Evolutionary Investigations. Kahn, P.H. and Kellert, S.R. Cambridge: MIT Press
- ⁷ Ernst, J., and Monroe, M. 2004. The effect of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research* 10(4)
- ⁸ Mannion, G, Adey, C., and Lynch, J. 2010. *Intergenerational Place-based Education: where schools, communities, and nature meet*. Stirling: University of Stirling for Scottish Centre for Intergenerational Practice.
- ⁹ Falco, E., 2004. *Environment-based Education: Improving Attitudes and Academics for Adolescents*. Evaluation Report for South Carolina Department of Education
- ¹⁰ Hartig, T., Evans, G., Jamner, L., Davis, D and Garling, T. 2003. Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology* 23(2).
- ¹¹ Gladwell, V., Brown, D., Wood, D., Sandercock, G. and Barton, J. 2013. The great outdoors: how a green exercise environment can benefit all. *Extreme Physiology & Medicine*. 2:3
- ¹² Bell, J., Wilson, J. and Lui, G. 2008. Neighborhood greenness and 2-year changes in body mass index of children and youth. *American Journal of Preventive Medicine* 35(6).
- ¹³ Taylor, A., and Kuo, F., 2006. Is contact with nature important for healthy child development? State of the evidence. In C. Spencer & M. Blades (Eds.), *Children and Their Environments*. Cambridge, UK: Cambridge University Press. pp 124-140
- ¹⁴ Thompson, C., Aspinall, P., and Montarzino, A. 2008. Adult visits to green places and the significance of childhood experience. *Environment and Behaviour* 40(1). pp 31-49.
- ¹⁵ Peter Watson, the current Deputy Minister of the Alberta Executive Council, said this when he was Deputy Minister, Alberta Environment



¹⁶ <http://education.alberta.ca/teachers/aisi/themes/literacy.aspx>

