

What are the guiding principles for designing new provincial curricula that encourage and support environmental education?

“Environmental education makes kids into ethical, engaged thinkers, which is exactly what the ‘Inspiring Education’ Report found Albertans want. Environmental education encompasses non-traditional, hands-on, experiential learning, which is becoming increasingly important. It teaches kids about foresight and consequences, inspiring them to think creatively about their effect on the Earth. I want to set Alberta on the road to a greener future, keeping our province beautiful as the economy grows. Environmental education is critical to achieving this goal.”

- Alberta Premier Alison Redford

Synopsis

Premier Redford suggests that environmental education “*makes kids into ethical, engaged thinkers, which is exactly what the ‘Inspiring Education’ Report found Albertans want.*” This document outlines some of the relevant principles that help guide the creation of the sort of curriculum that Premier Redford calls for in her statement above. To create these guiding principles we reviewed dozens of documents; these are listed in a reference list, and the top eight curriculum design documents (from a variety of sources from within Canada as well as Internationally) are outlined below.

Based on our review, ACEE has developed the following list of guiding principles for new curriculum that are needed in Alberta to achieve the Alberta Education’s vision for educated Albertans, as articulated in its recently articulated student learning outcomes and competencies.

New curriculum....

- provides the knowledge, skills, and values clarification that permit students to learn by doing, engaging in collaborative real-world project-based learning that is guided by their interests and relevant to their lives
- empowers students to engage in the democratic process and develop their citizenship competencies
- promotes health, happiness, quality of life and a sense of meaning, purpose and interconnectedness within one’s physical and social environment.
- encourages systems thinking, and helps learners understand the complexity of real world issues and multiple perspectives

- supports multidisciplinary or interdisciplinary teaching at all grade levels, and in particular grades 7 to 12
- is flexible, responsive and adaptable to local needs and changing circumstances; and is competency based
- emphasizes “depth, not breadth,” and allows the learner time to ‘drill down’ in the content and engage in relevant and meaningful learning
- provides opportunities for students to learn in their local community and environment

The top eight curriculum design documents (from a variety of sources from within Canada as well as Internationally) are outlined below:

1. Page 3: The Alberta Teachers’ Association (ATA) and the Alberta Council for Alberta Education (ACEE) collaborated to host the 2010 *Creating a Legacy Together* curriculum symposium. Over 250 teachers and other educators created *Environmental Education and citizenship: What we’d like to see in Alberta by 2030*.
2. Page 4: Existing Alberta curriculum: Environmental and Outdoor Education, Grades 7-9
3. Page 5: Guiding Principles for Western and Northern Canadian Protocol, January 2011
4. Page 7: “Integration and Curriculum Design,” Trudi L. Volk, 1993.
5. Page 8: Excellence in Education: Guidelines for Learning, North American Association for Environmental Education
6. Page 8: Beyond Ecophobia, Dr. David Sobel, 1995
7. Page 8: Environmental Learning and Experience: An Interdisciplinary Guide for Teachers (Province of British Columbia, 2007).
8. Page 9: Extract from ‘Earth Citizenship: A Conceptual Framework for learning for sustainability,’ New South Wales, Education & Training, 2009

Key Documents reviewed by ACEE

1. What Alberta teachers have told us: from ‘Creating a Legacy Together,’ our 2010 symposium with the ATA (full text in Appendix, or view full text and images from the event at <http://www.abcee.org/what-we-heard-2010-symposium>)

The Alberta Council for Environmental Education continually seeks input from education stakeholders, and in May 2010 we collaborated with the Alberta Teachers’ Association to host the *Creating a Legacy Together* symposium. Over 250 educators examined the theme of environmental education and global citizenship in Alberta, and a team of professional facilitators from Alberta Community Development helped capture their vision for the future education system. From the ratified proceedings:

By the year 2030, what does the broader education system look like? The Alberta curriculum...

- has been drastically revised, and has had much ‘curricular deadwood’ removed
- supports the creation of the ‘Twenty-First Century Skills’ that are being called for in educational reform across North America
- now allows teachers the space they need to create meaningful learning experiences, including cross-curricular approaches in Grades 7-12.
- contains curricular content, skills, and attitudes that all contribute to creating environmentally literate students
- supports, revises, and reinforces existing exemplary curriculum, such as the optional ENVOE (Environmental and Outdoor Education) curriculum that is taught in a few junior high and middle schools in Alberta
- assessment and accountability policies also support this environmental literacy goal, and emphasize environmental education and citizenship competencies

From the Symposium:

By the year 2030, what competencies does an environmentally literate student have?

Students...

- have a positive relationship with nature and the natural world, as a result of meaningful outdoor experiences
- demonstrate that they understand and care deeply about the world around them
- have an inner drive to do something to make the world a better place: they know about environmental issues, can think critically about them, and are engaged in activities to address them
- learn by doing, engaging in collaborative real-world project-based learning that is guided by their interests and relevant to their lives
- are competent in their public action skills, have experience in applying them, and know their actions make a difference
- have excellent communication skills, including written, verbal, and listening skills
- are life-long learners, and active citizens.

2. Existing Alberta Curriculum: Environmental and Outdoor Education, Grades 7-9

This junior high curriculum was developed with broad input and consideration of stakeholder groups and academic research. The complete curriculum document can be found at <http://education.alberta.ca/media/768718/eoed.pdf>

- Beginning with the **Environmental Core**, students become aware of and appreciate local environments and begin to understand the basic ecological principles that apply generally to all environments.
- Building on these foundations, students are then introduced to **Environmental Investigations**. In this part of the course, students will apply problem-solving skills to specific environmental investigations. Students investigate current practices and their alternatives, identify advantages, disadvantages and consequences of each, and decide on the best option.
- At the empowerment level, students work toward a personal **Commitment to Action**. Here, students are encouraged to establish a personal plan of action, act on it and evaluate it.

“The aim of education is to develop the knowledge, the skills and the positive attitudes of individuals, so that they will be self-confident, capable and committed to setting goals, making informed choices and acting in ways that will improve their own lives and the life of their community” (*Secondary Education in Alberta: Policy Statement*, 1985). The Junior High Environmental and Outdoor Education Course supports this program aim.



3. Guiding Principles For WNCPP Curriculum Framework Projects

Alberta is a signatory to the January 2011 Western and Northern Canadian Protocol (WNCPP) for collaboration on education, which provides a common vocabulary and a broad vision for the development of 21st century curriculum frameworks. The WNCPP has drafted five guiding principles to serve as starting points for rethinking curriculum frameworks.

1. Depth and coherence are essential to deep understanding.
2. **Diversity is a fundamental feature of a healthy, living system.**
3. Every discipline is a cultural inheritance.
4. Competencies unite learning.
5. **Learning and living well together in an interconnected world leads to sustainability.**

The following is extracted from Pages 12-13 of this document (available at <http://www.wncp.ca/english/subjectarea/projects.aspx>):

Learning and living well together in an interconnected world leads to sustainability.

To ensure students live well in our knowledge society, WNCPC curriculum frameworks need to be linked to diverse economic, social and environmental concerns, as well as to issues of citizenship and the well-being of our local, provincial/territorial and national aspirations and future. The principles of sustainability require us to examine critically our knowledge, skills, priorities, habits, beliefs, values, attitudes and practices. Through this examination, we are able to balance dynamically the needs of society, the environment and the economy to achieve quality of life for all. WNCPC curriculum framework projects thus foster links between student well-being and community well-being, with developing notions of self-identity, social responsibility and independence. All WNCPC curriculum frameworks must address the three pillars of sustainable development (economic, social and environmental) to enable learners to participate in and contribute to society in ways that build identity, social responsibility, citizenship, independence and an ethical mind. This involves:

- Understanding knowledge, including indigenous knowledge, as a lived practice in the world that is linked to community well-being, individual well-being and ethical issues on the use and application of knowledge in the world, and therefore, is a critical factor for sustainable development.
- Explicitly linking a living knowledge of the world to the functioning and wellbeing of a democratic, diverse, multicultural and First Nations, Métis and Inuit society.
- Creating collaborative opportunities which bring together communities in shared activity—including elders, parents/caregivers, the broader community as well as links to knowledge practices in the local and global communities.
- Respecting other people in the local community and in other places of the world. Cultivating a sense of local, national and global citizenship, coupled with a concern for environmental stewardship.

Sustainable development [economic, social and environmental] and social cohesion depend critically on the competencies of all of our population—with competencies understood to cover knowledge, skills, attitudes and values. (*p.4, from Organization of Economic Cooperation and Development (OECD) (2005). The selection and definition of key competencies: Executive summary. Paris, FR: The Organization of Economic Cooperation and Development.*)

4. From “Integration and Curriculum Design,” Trudi L. Volk, 1993.

Dr. Volk defines the following elements of environmental education, and shows where they should have major or minor emphasis in new curriculum.

Environmental sensitivity refers to an empathetic view of the environment.
Ecological foundations refer to having sufficient knowledge to make ecologically sound decisions.

Issues and values refers to developing an understanding of environmental issues and the values and implications surrounding them

Investigation and evaluation refers to the knowledge and skills necessary to evaluate issues and solutions

Action skills are those skills required to take positive environmental action.

Grade Level Ranges	Major Emphasis	Minor Emphasis
K-3	<ul style="list-style-type: none"> • Environmental sensitivity • Ecological foundations 	<ul style="list-style-type: none"> • Issues and values • Investigation and evaluation • Action skills
3-6	<ul style="list-style-type: none"> • Ecological foundations • Issues and values 	<ul style="list-style-type: none"> • Environmental sensitivity
6-9	<ul style="list-style-type: none"> • Ecological foundations • Issues and values • Investigation and evaluation • Action skills 	<ul style="list-style-type: none"> • Environmental sensitivity
9-12	<ul style="list-style-type: none"> • Issues and values • Investigation and evaluation • Action skills 	<ul style="list-style-type: none"> • Environmental sensitivity • Ecological foundations

5. Explore ‘Excellence in Environmental Education: Guidelines for Learning.’

The North American Association for Environmental Education used a rigorous consensus-based process across the environmental education community to create this document. It suggests a range of student learning outcomes at Grades Four, Eight, and Twelve, organized in four strands:

1. Questioning, Analysis, and Interpretation skills
2. Knowledge of Environmental Processes and Systems
3. Skills for Understanding and Addressing Environmental Issues
4. Personal and Civic Responsibility

The document may be downloaded at

<http://eelinked.naaee.net/n/guidelines/posts/Excellence-in-Environmental-Education-Guidelines-for-Learning-K-12>

6. Dr. David Sobel, from ‘Beyond Ecophobia,’ 1995.

“When considering appropriate topics for elementary and middle school aged children, I often suggest the maxim of **“No tragedies before fourth grade...”**”

“Curriculum that focuses on environmental problems will be most successful when it starts in fifth and sixth grade and then focuses primarily on local problems where children can make a real difference. Community service programs can show students the relevance of the curriculum and give local organizations a wonderful injection of youthful energy... If we want children to flourish, to become truly empowered, let us allow them to love the earth before we ask them to save it.”

Dr. David Sobel, from ‘Beyond Ecophobia,’ 1995.

7. Environmental Learning and Experience: An Interdisciplinary Guide for Teachers (Province of British Columbia, 2007).

This guide is provided to assist British Columbia teachers of all subjects and grades to integrate environmental concepts into teaching and learning. Designed as a support framework to guide teachers in their education planning, the guide also aims to support the implementation of many of the curriculum packages and will be complemented by web resources to support environmental learning in diverse

subjects like science, social studies and language arts. It includes An Interdisciplinary Guide and video clips.

http://www.bced.gov.bc.ca/environment_ed/

8. EXTRACT from Earth Citizenship: A conceptual framework for learning for sustainability, Draft, October 30, 2009

1. What foundation do I need for contributing to sustainability?
Wellbeing – personal, family and community wellbeing is a foundation and aspiration of sustainability
2. What kind of citizen should I be if I am to contribute to sustainability?
Global citizen- with a sense of belonging to and having responsibility within local, national and global communities
Biosphere custodian – with a sense of stewardship or custodianship for the biosphere (natural environment)
Change agent – with the capacity and motivation to be an agent of change towards sustainability
3. What do I need to be able to do if I am to contribute to sustainability?
World viewing and valuing – having repertoires of practice for becoming aware of, developing and discussing my beliefs, perceptions, values and ethical principles, and those of others
Systems seeking and testing – having repertoires or practice for understanding and working with complexity, uncertainty and risk (including scientific method, systems thinking and modeling, game scenarios and role-playing, probability and risk assessment)
Futures thinking and designing – have repertoires of practice for influencing the future, and designing and creating sustainable communities
4. What do I need to know if I am to contribute to sustainability?
Ecological systems and processes – recognizing that life is a function of ecosystems; understanding and being able to monitor ecosystem functions and major biosphere processes and their interactions, over various scales of space and time
Social systems and technologies – recognizing that human society is a part of the biosphere and that there are limits to the demands we place upon it; understanding how communities, practices and products and be assessed for and changed towards sustainability.

Reference List: Environmental Education Curriculum & Policy

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Appendix: Environmental education and citizenship: What we'd like to see in Alberta by 2030

This DRAFT document was

- *created by the Alberta Council for Environmental Education*
- *based on the proceedings of the May 2010 'Creating a Legacy Together' Symposium, which captured the vision for environmental education and global citizenship in Alberta of a dozen youth keynotes and over 250 students, teachers, and agency professionals (<http://abcee.org/EE-framework/what-we-heard>)*
- *Available for public comment on-line from 21 Sept – 25 October 2010*
- *Revised again based on detailed feedback from 45 environmental educators at workshops in Edmonton and Calgary, October 2010*

By the year 2030, what competencies does an environmentally literate student have?

Students...

- have a positive relationship with nature and the natural world, as a result of meaningful outdoor experiences
- demonstrate that they understand and care deeply about the world around them
- have an inner drive to do something to make the world a better place: they know about environmental issues, can think critically about them, and are engaged in activities to address them
- learn by doing, engaging in collaborative real-world project-based learning that is guided by their interests and relevant to their lives
- are competent in their public action skills, have experience in applying them, and know their actions make a difference
- have excellent communication skills, including written, verbal, and listening skills
- are life-long learners, and are active citizens.

By the year 2030, what competencies do the *teachers* of these students have?

Teachers...

- inspire, engage and empower their students to become environmental citizens



- understand that environmental education is an excellent way to deliver on all Alberta curricula that deals with environmental topics or citizenship competencies, and on other identified 21st Century learning skills
- know that ‘hope is a verb with its sleeves rolled up,’ and give students hope about the environment by motivating them, empowering them, and engaging them in environmental projects that help make a difference
- have a personal relationship with nature and are comfortable taking their students outdoors, and able to create powerful and positive outdoor learning experiences
- create classrooms that are safe places for important conversations that help students find, fine-tune, and focus their passion
- honour students’ commitments, and hold students accountable to them
- challenge students with statements like “There are problems in this world, what are you going to do about it?”
- create authentic inquiry-based learning experiences
- understand how to teach about controversial issues
- teach the curriculum through cross-curricular models that use the environment as an integrating context for teaching and learning, and as a way of connecting learning to government, community groups, resources, and issues
- are the ‘guide on the side,’ not the ‘sage on the stage:’ they facilitate student-centred learning, and are partners in the learning process
- know the power of ‘teaching through doing:’ they walk the talk in their lifestyle choices and citizenship activities
- have abundant time, opportunities, support, and resources to create these learning experiences.

By the year 2030, how do schools and school boards support teachers and students?

Schools...

- identify environmental education as a priority, and environmental citizenship as an essential learning outcome
- reduce barriers to environmental education and citizenship (barriers include lack of time and resources, overcrowded curriculum, increased class size and complexity, concern about outdoor activities, etc.).
- schools will build bridges to overcome these barriers: for example, they will...
 - encourage both outdoor education and locally developed environmental education courses
 - create a culture of environmental citizenship throughout the school, weaving together classroom learning, create school wide environment themes, and environmental initiatives such as green clubs or recycling

- support relevant teacher professional learning
- allow teachers time to plan and develop partnerships and relationships between school and community to strengthen environmental initiatives
- strive to reduce their environmental footprint through such things as green design and energy conservation, and engage students in this work.

By the year 2030, what does the broader education system look like?

The Alberta public and Alberta decision-makers recognize that

- environmental education and citizenship are essential features of education
- environmental education doesn't just occur in the formal education system; we need to support both non-profit and government agencies that deliver environmental education in informal and non-formal education settings
- policy must ensure that children avoid 'nature deficit disorder;' we must ensure that children receive abundant time in nature
- we need to do more if we are to create a generation of Albertans who can develop a sustainable future
- communities, families and individuals play an important role in supporting environmental education and citizenship in school and out of school and that learning is a lifelong process.

The Alberta curriculum

- has been drastically revised, and has had much 'curricular deadwood' removed
- supports the creation of the 'Twenty-First Century Skills' that are being called for in educational reform across North America
- now allows teachers the space they need to create meaningful learning experiences, including cross-curricular approaches in Grades 7-12.
- contains curricular content, skills, and attitudes that all contribute to creating environmentally literate students
- supports, revises, and reinforces existing exemplary curriculum, such as the optional ENVOE (Environmental and Outdoor Education) curriculum that is taught in a few junior high and middle schools in Alberta
- assessment and accountability policies also support this environmental literacy goal, and emphasize environmental education and citizenship competencies

Both practicing teachers and new teacher graduates have the competencies listed above...

- the network of organizations that deliver professional learning to practicing teachers now offers a suite of educational opportunities that support environmental education and citizenship
- similarly, the Alberta universities and colleges responsible for teacher preparation have revised their programs.