

# Editorial

## From the Editor



This issue of *Connections* features water. Our bodies are mostly made up of water, and without water, we cannot live. Our crops depend on water, as do the animals, birds, insects, trees and so on—in short, all life depends on water to some degree.

Predictions have been made that within 10 years, wars will be fought over potable water; that it will outstrip all other resources in value.

Our own province is in the grip of a major drought. Last summer saw countless tragedies unfold as farmers lost crops and were forced to destroy or sell off livestock at record-low prices because there simply was no food for them. Somehow, many people in the city remain ignorant of the extent and seriousness of this situation. They are hardly touched by the horror and anguish of farmers, who are reduced to 10-second bytes of pain on the television screen. The lawns are green (how?), the cars are shiny, the food is

on the shelves in the grocery store and complaints are made about rising costs of food (why?).

A few weeks ago, when we were experiencing temperatures of minus 35 degrees Celsius, I witnessed a man being annoyed at a gas attendant because the car wash was closed. Some of you will chortle (quite rightly) that he must have had rocks for brains to be washing a car in those temperatures. But when I saw his car, I felt an unusual flash of anger. It was a late model, shiny sports car with a few small splashes of mud on the rear bumper. My immediate thought was "How could he waste water to clean that car?" I realized that I was internalizing the value of our most precious resource: water.

The water stories featured here range from the global to the local. Get involved. Have your students find the source of their water and track it down to where they live. Celebrate it. Celebrate the rain. Go for a walk in the rain and wonder at it. What are the water issues where you live? What are the water issues where your food comes from? What changes can your students make in their lifestyle to make a difference? It matters to everyone.

Best wishes

—Karin Adshead

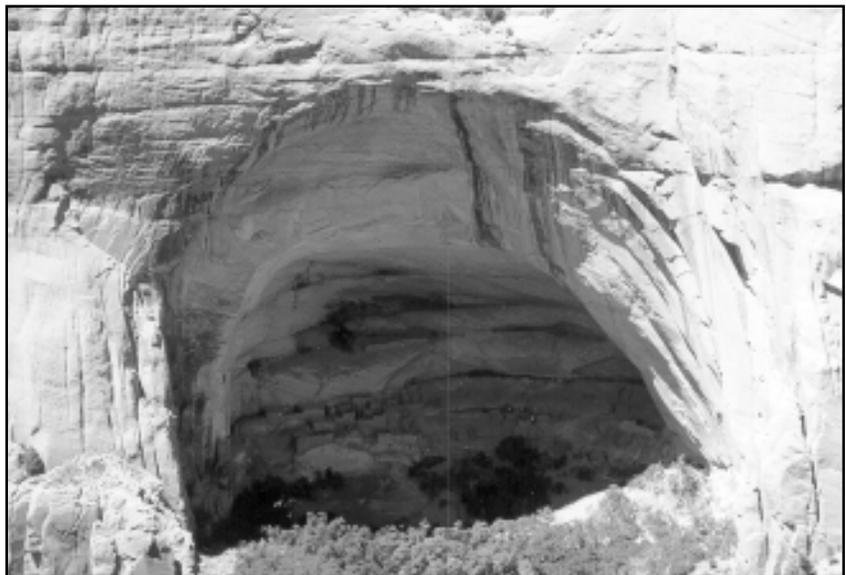


Photo by Louella Cronkhite

# Schedule for Submissions

*Connections* seeks articles on the following topics:

Theme: Climate Change

Deadline for Submissions: June 15, 2003

Issue Due Out: August 15, 2003

- The big picture
- Perspectives on climate change: big debate (I need two perspectives)
- Understanding Kyoto: an analysis of the document
- Solar power
- Wind energy
- Composting
- The natural step
- Greening a school
- Student's questions: a classroom talks about climate change
- Classroom experiments

Theme: A Sense of Wonder

Deadline for Submissions: September 15, 2003

Issue Due Out: November 15, 2003

- Rachel Carson: woman, scientist, history maker
- How do you get children to open to their sense of wonder?
- How do you get teenagers to hold on to their sense of wonder?
- A personal journey of discovery: the moment you reclaimed your lost sense of wonder
- Poetry sharing the beauty of nature
- Photography and artwork celebrating nature's wonders
- "All things bright and beautiful, all creatures great and small"
- Personal accounts of experiencing life's wonder and living in tune with nature
- A moment of wonder that propelled you into a life career in environmental or outdoor education
- An account of the person who inspired you to see the wonder of nature
- Building a sense of place

*Connections* also requires submissions for the following regular departments:

- What's Happening (and Where)—sharing events and programs related to global, environmental and outdoor education
- Resource Feature—highlighting resources related to global, environmental and outdoor education
- Who You Gonna Call?—identifying people or organizations that offer valuable and possibly unusual resources to teachers
- Reach For The Stars—celebrating models of excellence through profiles and case studies

*Connections* also needs artists and photographers to submit their work. If you have photos, drawings or other artwork that would complement any of the above themes, let me know.

## *Connections* Photo Contest

The three categories are:

- our natural world
- people in nature, and
- children at play in nature

All photos should be sent to the *Connections* editor as soon as possible. The winners will be announced at the GEOEC Conference in May 2003. The prize is yet to be determined. All submissions will be featured in *Connections* in upcoming issues.

## What Should Submissions Look Like?

- Preferably, submissions should be four typed pages maximum (but not limited to that).
- The readership consists of teachers, educators and interpreters who are directly involved in environmental, global and outdoor education in some capacity, to people of all ages.
- Teachers really appreciate examples of working ideas that they can take into the classroom (indoors or out).

- The style is relaxed—not formal journal style. However the quality writing is still important and valued.

We will send you a free copy of the final issue that features your article.

Please include the following with your submission:

- A brief biography (2–3 sentences)
- Your mailing address (so we can send you a copy)

## How Do I Make a Submission?

Sending submissions by e-mail is ideal because it arrives in a very functional format, but you may also submit articles or artwork by regular mail (on a diskette or as hard copy).

Send submissions to Karin Adshead,  
9829 74 Avenue, Edmonton T6E 1G1;  
e-mail [karin.adshead@earthchallenge.com](mailto:karin.adshead@earthchallenge.com).

### Teach Grade 4 to 8 students about global issues through UN program

What Kind of World (WKOW) is an educational program designed to teach youth in elementary and junior high schools about the United Nations (UN) and international issues from a Canadian perspective. It draws links between local and global issues, and highlights the role of Canada in the UN. The program contains three one-hour lessons and is complemented by a comprehensive facilitator's package for use by teachers or trained volunteers. You can learn more about the program at [www.unac.org/learn](http://www.unac.org/learn). For further information, contact Evgenia Stoyanova, Albert Regional Coordinator for WKOW program, (780) 415-6276; e-mail [nia\\_stoyan@hotmail.com](mailto:nia_stoyan@hotmail.com).

# Articles and Features

## Prairie Drought Connects Us Globally

*Louella Cronkhite*

When students at Piikani Nation Secondary School in Brocket, Alberta, celebrated Earth Day in April, they were well prepared for a Unitarian Services Committee of Canada (USC) session on desertification. After all, southern Alberta is quite dry and prone to desertification. The Piikani people are connected to water in part through Napi, or the Oldman, the river that winds through their reserve.

First, the students studied pictures of USC's work in Mali. They noticed the dry soil, the evidence of wind and water erosion and the foraging behaviour of the animals. Mali, they concluded, could become more of a desert because trees were being cut down for firewood, animals overgrazed the land and dry and windy weather conditions caused the soil to blow away.

Students watched the USC video "Challenges in Arid Lands" and saw what people in Mali are doing to control desertification, including forming village environmental committees, teaching environmental

education in schools and using appropriate strategies to prevent soil erosion. Students learned about the seed banks farmers have established to test out and preserve the types of seeds that grow best in Mali's loose, sandy soils, and about the gardens being planted and the experimenting with new varieties of vegetables.

Like the students living on the Piikani reserve in rural Alberta, many Malian youth have little opportunity to leave the village to find work in the cities (the "Exode," or Exodus). This is hard on family life.

### Drought on the Prairies

This has been a difficult year for most farmers on Canada's prairies. Many crops have failed in the drought-stricken areas of Alberta and Saskatchewan. As a result, many fields will be left with little crop residue, raising concerns of increased wind and water erosion.

Erosion decreases soil productivity due to the loss of plant nutrients and the degradation of soil structure. The loss of one inch of topsoil reduces wheat yields by about 3.5 bushels an acre. Soil erosion also pollutes the air and water with soil particles and associated nutrients and pesticides. Unless erosion is controlled, the loss of topsoil results in a permanent decrease in yield potential which can only partially be restored by large additions of fertilizer or manure. Given time and no further erosion, the soil can rebuild itself at a rate of about one inch in 30 years.

Prairie farmers rely almost exclusively on crop residue to control erosion. The amount of straw required to keep the soil in place varies according to several factors, including weather conditions, soil type and topography. Unfortunately, straw production has been much reduced during this drought, and any subsequent tillage only buries or

flattens residue, increasing the erosion risk.

The federal government is investing \$60 million in a prairie water-development program, and a new farm-aid package will help farmers cope through the hard, dry summers. Farmers are already starting to diversify to adjust to the weather conditions. But unless the prairies get some rain soon, many farmers may also be forced to leave the land—the Exode.

## Desertification Facts

- Desertification damages 70 percent of the world's drylands, which is 3.5 times the size of Canada.
- About 30 percent of the Earth's total land surface is affected.
- Every year, land permanently degraded to desert-like conditions increases by 10 million hectares—an area twice the size of Nova Scotia.
- One hundred and ten countries are affected by desertification. Eighty are low-income or developing countries with limited resources to restore degraded areas. Two-thirds of Africa is desert or dryland.
- Up to a billion tonnes of African dust can blow across the Atlantic in a single year.
- Desertification stresses the world's food-producing capacity. Each year, 10 million hectares of land are lost at the same time as the world's population is growing.
- Desertification affects the global loss of biodiversity; 27,000

species (three per hour) are lost each year.

- At 74 percent, North America has the highest proportion of drylands severely or moderately affected by desertification.
- There are currently 25 million refugees in the world forced to relocate as a result of desertification. Another 250 million people are in danger of losing their land.
- The United Nations estimates that desertification causes affected countries to lose \$45 billion U.S. in income per year. Global efforts to prevent or correct desertification cost less than half this amount.

Canada is part of the United Nations Convention to Combat Desertification (UNCCD) in countries experiencing serious drought and desertification, particularly in Africa. Canada's primary responsibility under the Convention is as a donor party. Canada provides support to developing countries in all regions of the world in their fight against desertification, mainly through Official Development Assistance (ODA) programming.

## Famine Threatens Southern African Region

Unlike in Canada, food is scarce in the southern Africa region. It's an extremely critical situation that is deteriorating daily. The World Food Programme, an agency of the United Nations, has warned that 13 million people in southern Africa will need

supplies of food over the next nine months. Hundreds of thousands of people could die of hunger before the end of the year in seven African countries in this region. Hundreds have already died in Malawi, the most affected country to date, but the tragedy is also poised to hit Zambia, Zimbabwe, Angola, Mozambique, Swaziland and Lesotho.

Crops have failed across the region due to drought, floods and land degradation. The price of maize—southern Africa's staple food—has also soared because of scarcity of crops due to drought. Malawi president Bakili Muluzi declared a state of emergency in February. Up to three million are facing starvation there, mostly in the southern part of the country. Out of 27 districts, 14 were hit by floods and six others experienced prolonged dry spells. Malawi needs 485,000 tonnes of food to avert widespread hunger.

The Lesotho government declared a state of famine in April. The 2002 harvest is 60 percent below normal due to heavy rain during the ploughing and planting season in October and November, and a succession of frosts, hailstorms and small tornadoes. For years, crop yields have been falling as soil erosion and degradation have increased. One-fifth of Lesotho's population already needs assistance. Hundreds go to bed without eating anything at all. HIV/AIDS is exacerbating the situation; those infected die quickly when they are hungry.

The people of southern Africa need relief aid now, but they also need longterm solutions to fight the

causes of this famine. That's where USC's Seeds of Survival program comes in.

In a region like this, where 75 percent of the population depends directly on agriculture for their livelihood, farming practices that are less fragile, less degrading to the land and more adaptable to local conditions are the keys to longterm answers to the threat of famine. Although global climate change is a major underlying cause of the drought and flooding, the land has also been seriously degraded by inadvisable farming methods. For instance, farmers throughout the region have been encouraged to practise monocropping—planting a single type of crop—instead of the traditional method of intercropping many types of plants. Monocropping degrades the land and leaves farmers vulnerable. In a bitter irony, traditional, local knowledge of drought-resistant crops is being lost.

USC's prize-winning Seeds of Survival program is a sustainable agriculture program that reduces a society's vulnerability to the effects of climate change through soil fertility management; using adaptable, time-tested plant genetic resources; community seed-banking; encouraging policy formulation that acknowledges the need to adapt to climate change; and promoting agrobiodiversity practices (diversity of plants through intercropping). To do this, the program relies on the synergy between traditional, local farmer knowledge and appropriate Western science.

USC has several successful Seeds of Survival projects in the southern Africa region and hopes to expand this to help create a sustainable base of agricultural practices throughout the region.

The Seeds of Survival program supports programs in south Asia, West Africa/the Sahel, Southeast

Asia, southern Africa and Central America. Programs like these are creating longterm and sustainable solutions to poverty with full participation of local people.

## Making Connections

USC's Public Engagement Program helps Canadians make a connection between what is happening here and what is happening in other parts of the world, particularly where USC works. Through USC's workshops and presentations on desertification and climate change, both children and adults can become actively involved at the local level through supporting land management practices and planting trees, at the national level by supporting Canada's commitment to the UNCCD and internationally by supporting USC's Seeds of Survival programs in over 20 countries worldwide.

## Sources

USC Canada  
[www.usc-canada.org](http://www.usc-canada.org)

Agriculture and Agri-Food Canada  
Drought Watch  
[www.agr.gc.ca/pfra/drought/default.htm](http://www.agr.gc.ca/pfra/drought/default.htm)

Developing Countries Farm Radio Network  
[www.farmradio.org/english/desfacts.html](http://www.farmradio.org/english/desfacts.html)

International Development Research Centre  
[www.idrc.ca](http://www.idrc.ca)



*The author on holiday in a dry place in the western United States.*

# From the Heart of a Good Farmer

*Rebecca Lippiatt-Long*

Growing up, I remember my father spending long hours in the field, heading out as the sky was beginning to light up. He would return at the end of the day, his skin dark like the night with dirt. The creases that framed his eyes wore deeper over the years.

Last spring, as people in the city were enjoying the warm, dry weather, farmers were planting seeds in ground they knew was too dry. If they delayed, there would be no crop. But if it wasn't going to rain, they may as well have been shoving dollar bills into the ground.

I stood at the window of the air-conditioned highrise office I work in. If I looked hard enough southeast, I imagined I could see my parents' farm. Small clouds drifted across the sky. I have never lost the cricked neck and squint characteristic of farmers, developed

by years of praying hopefully at the sky. I stared hard at the clouds, trying to pull the cotton balls into a mass and send it home.

One day, skinny drops of water slid part-way down the window before evaporating in the heat. A man I hardly know scowled out at the grey: "Damn rain. I have a golf game." I turned and snarled at him: "Do you like to eat? If there is no rain, there is no food."

I remember reading a Max Braithwaite story in which he wrote about the year it didn't rain in Saskatchewan. I couldn't conceive of such a thing. How could it not rain for a whole year? Last year in central Alberta, it rained about four inches instead of the normal 20.

By early summer, farmers knew the seeds they planted with hope would produce nothing but short grass.

Because the fragile stalks were so

dry, my father went out in the field with the lawnmower and cut the stunted grain to feed the animals corralled by the barn. Using the tractor to mow the grass would have destroyed too much of the precious feed.

He spent several hours a day herding the cattle up and down the edge of the road, stealing weeds from the county.

My father breeds purebred Simmental cattle. I remember the first cow he bought more than 25 years ago. We named her Annie because he bought her on my parent's anniversary. This year he had to sell one-third of his cattle herd. That's equivalent to 10 years' worth of work.

In a good year, cows can fetch \$2,000. This past year, auctioneers were stopping auctions because the prices were too low.

In response to the drought, the provincial government stepped up with a well-intentioned \$324 million aid package based on acreage. My father received \$1,010. It bought him 10 bales of hay to feed his remaining cows for 10 days.

He estimates it will take five good years to recover what he lost. My father is a good farmer. He cares about his animals and he knows the land. But often, that's not enough. Farmers also have to be good gamblers, have deep pockets and be willing to take huge risks. To get a return of one dollar, a cattle farmer has to spend 94 cents. The weather also has to cooperate.

I asked my father why he does it. Someone has to feed the world, he says.



*Photo by Louella Cronkhite*

# The Rain Barrel Returns!

*Brian Johnston*

When the weather gets hot and dry this summer, your utility company might be asking you to stop watering their lawn and gardens. New watering restrictions will keep potable water demand within reasonable limits and reduce the need for water treatment plant expansion.

So how do we keep the garden growing and save the lawn from drying to a crisp? The City of Edmonton Water Branch (prior to EPCOR) investigated this problem and the results were surprising. Not only could rain barrels provide a reliable supply of water (every day of the summer), they could also provide enough for a large residential garden. They are also economical—rain barrels can save the homeowner money if relied on for household outdoor watering needs. Although this is true for an average summer rainfall, it would not have held true for the past couple of summers. Last summer, for example, we did not receive any appreciable rainfall until the middle of July. In cases like this, it can help to hook up your grey water to a rain barrel so that it can be filled by wastewater from doing laundry or showering.

Rain catchment is not a radical idea. Many communities around the world rely on rainwater as the main source of water. In the past, Venice, Italy, relied almost completely on

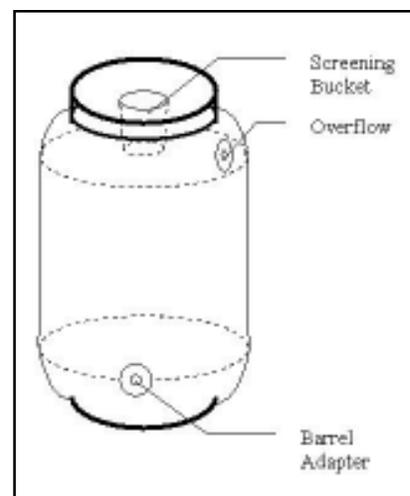
water collected from rooftops and drained into courtyard cisterns. Modern-day Gibraltar relies on a rain-catchment system spread over the side of the mountain. Germany, England and Japan use rainwater to supplement industrial and residential water requirements. Edmonton can follow these examples to take advantage of a resource that currently is just going down the drain!

## Why Promote Rain Catchments?

Utility companies experience their peak water demand during the summer. We can reduce this peak demand by substituting rainwater for treated water. We can also use conservation measures, such as soaker hoses, low flush toilets and switching from a bath to a shower. For areas that use the combined sewer system (in which both rainwater and sewage use the same pipe and are routed to the wastewater treatment plant), such as Edmonton, disconnecting downspouts from the sewer system and hooking them up to a rain barrel will assist in reducing the amount of sewage that gets flushed into the river with a heavy rainfall. The wastewater treatment plant cannot handle the volume of water it receives from the combined sewer system.

## How Can a Homeowner Benefit from Collecting Rainwater?

1. Saving water saves money. Rainwater is free and raincatchment systems will pay for themselves over time.
2. Rainwater contains no chlorine, fluoride or salts. Lawns and gardens prefer it!
3. Fountains are becoming increasingly popular. A rain-catchment system can easily provide enough water to fill a fountain and make up for water lost to evaporation.



4. Rain catchment reduces runoff from residential properties and therefore reduces the incidence of flooding caused by overloaded storm sewers.
5. Businesses involved in washing activities that have large roof areas can reduce the demand for city water by collecting rainwater. An evaporative cooling tower may also be economically beneficial.

## Characteristics of an Ideal Rainbarrel

A rain barrel should be tall to create greater water pressure for watering with a hose (through a hose adaptor at the bottom of the tank). A rain barrel should be sealed so that no small animals can fall into it from the top. It should have an overflow to route water away from the foundations. Its foundation should be solid and level to prevent the tank from tipping over. Keep in mind that water weighs 10 pounds per imperial gallon, meaning that a full 45-gallon (205 litre) rain barrel weighs 450 pounds and a 220-gallon (1,000 litre) rain barrel weighs 2,200 pounds.

## How Much Water Is Available for Collecting?

In Edmonton, the average rainfall over the last 30 years has yielded approximately 340 mm of water depth per year. Thirty four cubic metres of water could be collected on a 100-metre square roof surface

every year, less any losses due to leaky downspouts and so on. A typical rainfall of 10 mm would yield one cubic metre of water, an amount easily stored.

## How Much Water Do You Need?

The amount of water you need depends on the size of your garden and what you are planting. For example, a garden of cacti requires less water than a garden of tomatoes.

Water is a scarce resource and it is incumbent on all of us to conserve it and use it responsibly. Rainwater-collection and gravity systems reduce the amount of electricity required to pump and treat water at both water and sewer treatment plants, which is even more important now that Canada has signed the Kyoto Protocol. Electricity is made primarily by burning fossil fuels, and reducing our treated water consumption will therefore reduce our greenhouse gas emissions. This will, in turn, assist in combatting climate change, which may be a factor causing the current drought conditions.

Happy watering!

To register for the rain barrel project, call Brian Johnston at (780) 433-7508 or the Waste Hotline at (780) 496-5678.

The program consists of three parts:

1. The Lawn Gone course—This course focuses on indoor and outdoor water conservation and the finer points of rainwater harvesting. As part of the course, you will learn about organic vegetable gardening and alternatives to lawns.
2. One year of water consumption data—This information is collected to measure program participants' total water consumption prior to rain barrel installation. Bring your water bills (usually included with your EPCOR power bill) to the Lawn Gone course.
3. One year of water consumption data after installing the rain barrel—This information is collected to determine the amount of water participants saved as a result of collecting and using rainwater.

Contain your rain now! Call us for your rain barrel. There are a variety of barrels to choose from.



# Gardens that Honour the Earth and its Water Resources

*Karin Adshead*

Permaculture emerged in the 1970s as an experiment in self-sufficiency when Australian Bill Mollison was searching for the smallest piece of land that would allow him to exist in a sustainable way.

The aim of permaculture is to create ecologically sound and economically prosperous human communities. It is guided by a set of ethical principles: care for the earth, care for people and share the surplus.

In making a landscape design within this framework, the relationships between plants, animals, people and buildings are taken into account to create a healthy, sustainable whole. The following is a landscape method designed to increase food self-sufficiency and reduce dependency on outside water sources. In the process, we fulfill our role as Earth stewards. It is also a wonderful way to provide hands-on demonstrations of many elementary science units in a compact space—you can do a lot in an 8 by 16-metre space.

How it works: The yard is divided into zones by concentric circles expanding out from the building perimeter. The zones are determined by how often they are used or need attention. In zone one, kitchen herbs and vegetables are grown as

close to the door as possible to make their use and maintenance easier (a garden that is 50 feet away won't get visited as often). The patio and lawn fall into zone one as well. Zone two would contain dwarf fruit trees, berry bushes and row crops (if space permitted). Zone three holds larger fruit trees and native trees and shrubs that will support wildlife. This zone is referred to as the food forest. On an acreage-sized site, this zonal system gets more complex.

Within each zone, careful attention is paid to the multifunction potential of each plant. Plants no longer serve a single role, whether as food or decoration. Plants can be mulch-makers, nutrient accumulators, nitrogen fixers, insect attractors, pest repellents, fortress plants, spike roots, wildlife nurturers and pioneers. Plants can provide shade, support for other plants to climb, pioneering for new sites, food for humans and aesthetic appeal. Many plants can fill a number of these roles. The location of plants in a permaculture design is determined by how they complement each other's needs and fit within the whole. These plant groupings are called guilds.

The function of the food-forest component, which uses careful

combinations of native trees and shrubs, is to provide homes and food for wildlife, and occasionally for us as well. The food forest attracts birds and insects to the yard, making for a more balanced environment. They pollinate, disperse and process seeds, prune vegetation, eat pests, dispose of waste and circulate nutrients, making gardens more productive and disease-free.

Water conservation is a critical factor in permaculture design.

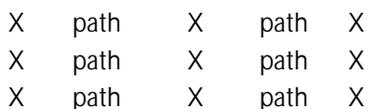
Rain barrels trap rain run-off to be used for watering. Rain barrels are so obvious and simple. Grandpa knew what he was doing. Once installed, maintenance is reduced to emptying them for the winter or, at the least, detaching the downspout from the barrel. I waited too long one fall and an early cold spell pushed my downspout up and out of the eaves when the ice expanded.

On sites with a slope, contouring is applied and swales are dug to trap rain. A swale is a shallow trench that follows the contours of the land so that water doesn't flow along it but soaks into the soil beneath it instead. This takes advantage of soil's natural ability to hold and retain water: one litre of dry soil will hold three litres of water. This water-retention ability is tied to the

amount of organic matter in the soil (when thinking organic matter, think sponge). The centre of the swale depression only has to be a few centimetres lower than the edges to catch rain (unless there is a torrential downpour causing a spill-over). A swale can be as small as half a metre across, with a depression a quarter of a metre deep, at whatever length works. The earth dug to form the depression is piled up on the down slope to make the berm that catches the water.

Dense plantings are used to create shade and lower soil surface temperature, thereby reducing evaporation. This also makes weeding much easier—once the plant canopy closes over, weeds can't really compete. Avoid walking on the soil and thereby compacting it. Compacted soil resists water absorption and heats up faster. Use raised beds or boxes and apply the square foot gardening method to create dense plantings, which also boosts productivity. Make raised beds a maximum of four feet wide so that the middle can be reached. In the diagram below, assume that each "X" represents a plant.

Traditional Planting:



Square Foot Gardening:



With raised boxes, the plants are less likely to be trampled (which is important for school settings), boxes are easily accessible from all

sides simultaneously, they drain well and they warm up early in the spring, providing an extra month of growing time.

Mulches are also used between plantings to reduce evaporation. Mulches can heat soil up or cool it down. It is important to remember that Alberta's short growing season and frequently cool night temperatures make mulching slightly different here than in other parts of Canada. A plastic mulch will heat up soil and should be used in spring to get plants growing. By July, a straw or shredded bark mulch can be applied around vegetables and fruit bushes to cool the soil and retain water. In the fall, pull the mulch back until the ground is frozen, then re-apply it. This allows plants to enter dormancy safely. Once the ground is frozen, applying a mulch will prevent the loss of water from cold winter winds and moderate the soil temperature to prevent rapid freezing and thawing during chinooks. Mulches around fruit trees and shrubs should not touch the trunk of the plant because it makes it easy for tunnelling rodents to access that tasty bark. When spring arrives, remember that the cold soil under the mulch will slow the growth of the plants. This can be useful in delaying flowering during risky frost periods, but it may also cause problems by delaying the ripening of fruit.

It can be a good idea to use native trees and shrubs that are adapted to your location. This also helps wildlife because they are adapted to particular plant species for food sources. If the native plants provide edible fruit (such as saskatoon berries, raspberries or highbush

cranberries), then everybody is happy! In a school setting, this topic can generate many interesting discussions, such as the origins of native plants, how they got here, why they are adapted, biodiversity and so on.

Working compost into the soil increases the soil's organic content, which acts as a sponge to hold water in the soil. Composting not only reduces waste (goodness knows most schools have an excess of that) but, in the long run, reduces the amount of methane gas that comes from landfill sites, thereby affecting climate change. Also, kids love worms, and vermicomposting is a great way to get kids turned on to composting.

It should be clear by now that for permaculture to work, it is essential to apply organic growing methods. Herbicides and pesticides have no place in a yard that honours the existence of all of its components.

Permaculture by its nature allows students to explore many aspects of sustainable living. It can be small and compact or large and increasingly complex, building the possibility of project expansion over time. Schools need to assume an educational responsibility as water resources dwindle. Demonstrating water stewardship through good landscape design on school grounds is not only full of teachable moments but may influence the way school families do things at home.

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*Karin Adshead is the editor of Connections and project manager of the Earth Challenge Foundation. She is spearheading a community project based on the principles of permaculture in Edmonton, Alberta, and welcomes queries. She can be contacted at [karin.adshead@earthchallenge.com](mailto:karin.adshead@earthchallenge.com) or (780) 457-9519.*

*Editor's Note: Be sure to check out Janet Pivnik's article "Perma-What?" in the last issue of Connections (Vol. 27, No. 2, Winter 2003).*

# Winning Through Partnering in the Out-of-Doors

*Murray Toft and Bert East*

After several years of teaching my 400-level Experiential Education course at the University of Calgary, I decided I needed some more “oomph” to get the juices flowing again. Although the program-development content seemed solid enough, the delivery needed some ramping up. I doodled with various experiential solutions, and all the while a single name kept ringing in the back of my mind.

Enter Bert East from Vincent Massey Junior High School in Calgary. Several university students had been involved in practicum placements with Bert through his outdoor education class, and I'd come to know him by reputation as someone who was totally dedicated to helping young minds and talents flourish through outdoor challenges. I made a call. Would he be interested in collaborating in a win-win situation in which my outdoor-pursuits students would design, run and evaluate a two-day outdoor camp? Yes, he was interested all right. The late-November timing was perfect, and the low student-teacher ratio would allow his students to get some valuable preparatory mileage in harsh outdoor living conditions before they entered his winter outdoor education courses. From

his perspective, this would provide a perfect opportunity to expose his students to highly skilled, energetic and motivated instructors. The outdoor-pursuits students would be excellent role models for the junior high students and able to give them the necessary emotional support for coping with first-time activities and potentially demanding weather conditions.

From my end, it would be a perfect capstone experience for university seniors in outdoor pursuits. They would be getting valuable programming and counselling experience while still in the important feedback loop of course work. After all, they were coming to the end of an experiential semester in the mountains, glaciers and rivers of the Rockies, with a focus on skill development and small-group process. Life in the hills had been a full-on and intense eight weeks of compressed living in bivouacs, tents and mountain huts. From a week-long, stone-age survival course—

ultimately subtracting everything but the clothes on their backs and a carbon steel pocket knife for the final 36-hour solo—to dangling down the jaws of dark, black crevasses, to running icy grade-four rapids in an open boat, to the demands of constant problem solving and emotional survival with peers, it was at last time to put it all to work. Caring for small groups of energetic junior high students in a



*Experiencing new emotions in the rush of the King Swing.*

snowy environment would be a perfect finale for their leadership skills.

Working toward a deadline certainly bolstered the course's "oomph factor." Project tasks and deadlines were plotted on critical path planning charts and there was no need to remind the newly-dubbed "project consultants" of the need to stay on track. Real performance pressures took care of that. A pyramid of process quickly mounted as off-campus site evaluations; safety-management plans; content-delivery and lesson plans; legal issues; gender issues; student, parent and principal meetings; transportation; budget items; and a ton of other logistics faced the group. What originated as a draft program had turned into a very real and demanding expectation of total commitment and performance. As philosophical debates went into the wee hours, patience was tested, tempers flared and bags appeared under eyes. Ideas were brainstormed, risks were taken and intense internalized education took place. This was the

process of experiential education at its best.

At Bert's end, the low student-teacher ratio provided all the right reasons for engagement. Increased safety in a hostile winter environment, increased opportunities for effectiveness through group bonding, the opportunity to use this one-off program as a reward for prior performance and the fact that the outdoor-pursuit students had small-group process skills made a strong argument that administrators had little difficulty with.

What began as two one-day experiences (one day in the city and one day in the country) has now grown into a three-day wonder. After seven years, the trust and confidence between the two institutions has grown to build a full-day, in-city shakedown, followed by a two-day overnight experience. Baseline program skills and techniques include dressing for winter activity, provisioning,

cooking skills, navigation, shelter building, initiative games and rope courses. But these elements are only the context for the much larger end game of developing fully functioning young people. An education that develops the whole student includes taking responsibility for one's self and others, risking opinions and making decisions in a small group, reacting positively to new and challenging environments and looking for meaning through active processing in journals and discussion groups. No wonder Bert has a waiting list. His after-the-fact videos and still photos allow students to see themselves as others see them. The videos are more than home-movie entertainment—they allow students to get valuable and



*New games require a blend of critical thinking, personal focus and group effort.*



*The only electricity in the Electric Fence comes from the group solving the problem.*

... *Articles and Features* ...

constructive feedback on their wilderness performance. At the same time, these images become great assets in bringing parents onsite at parent-teacher interviews. The reputation of this event precedes itself and it has become an annual attraction for both institutions.

Such a win-win adventure in learning is possible on many fronts. The trick is to see the possible connections in your own community, then to reach out and

make that call. You may be very surprised where it takes you. You may find that you become more energized about your own learning and teaching, as well as your students'. The collaborative process

is exciting, demanding, enriching and a powerful medium for internalized learning. I encourage you to take the next step in your teaching career. Reach out and make that call.



*Sharing opinions and insights about the best route to find the pot of gold.*



*Discovering new personal strengths on a ropes course—Postman's Walk.*



*A moment of reflection around a mug of hot chocolate.*

# Water Usage

*Louella Cronkhite*

In the 1970s, I taught at a school in a village in Botswana, not far from the edge of the Kalahari desert. Water was scarce but safe to drink from the tap because it was pumped up from deep bore holes and stored in elevated water tanks. Pipes from the kitchen sink and the bathtub drained directly out the wall of the house, so we rigged up an irrigation trench for our grey water to our vegetable garden using bricks and cut-up tin cans. The hot water tank was suspended above the wood stove, with pipes winding through the fire box and back to the tank. Wood was scarce and had to be purchased from villagers, who collected it from the diminishing supply outside the village. We made sure to take advantage of a hot stove to cook our dinner, bake

cookies or lemon pudding (from freshly picked lemons), and heat enough water to do dishes and share bath water. We only washed dishes and bathed in the evening. Baths were by candlelight because we didn't have electricity.

In the 1980s, we lived in Ouagadougou, Burkina Faso, not far from the Sahara Desert in West Africa. Water was more scarce than in Botswana, and during the day, only a small dribble made it to our taps. We filled our water barrel through the night and relied on this supply for the next day's needs. This time, the water wasn't safe to drink from the tap, so we were conscious of how much water went through the porcelain filters and how much we needed to consume each day to stay healthy. We were working

with several communities that had virtually no access to a water supply, teaching them to case traditional hand-dug wells with cement blocks and create small dams with local materials so that when it did rain, the water would be trapped.

Now we live in Lethbridge, Alberta, and although we have never had to ration water in our 22 years here, both my husband and I continue to be conscious of the blessing of every drop of drinkable water. We do the usual things—we don't run the water while brushing our teeth or doing dishes, we use water twice when possible, we only run the washing machine and dishwasher when they are full, and we turn off the shower between lathers. We are also experimenting with xeriscaping. The word xeriscaping comes from a combination of two other words: *xeri*, derived from the Greek word *xeros*, meaning dry; and *scape*, meaning a kind of view or scene. Although xeriscape translates to mean "dry scene," in practice it simply means landscaping with slow-growing, drought-tolerant plants to conserve water and reduce yard trimmings.

Karin Adshead's request for the GEOEC executive to write a paragraph or two on how we save water has given me the incentive to look at even more ways to conserve this precious resource.



*Photo by Louella Cronkhite*

# Trees

*Janina M. Carlstad*

As a child, I went with my family  
To the woods  
Where I sat  
    In sylvan glades  
Watching small songbirds  
    Flitting among the branches.  
I felt the mossy forest floor,  
    Watched the insects crawling by,  
Touched the powdery trunk of the aspen,  
Saw the marks left behind  
    From the grizzly's claw,  
    The elk's browsing,  
    And the pileated woodpecker's nest.  
With my family, I learned  
to love and listen to the trees . . .

As a child, he watched with his family  
As his father and brothers came home  
From their work with the cats, the bunchers,  
    The delimiters  
He watched the loads of logs  
    Wind their way down the hills  
He listened to the creaks, squeaks and groans,  
    The roar of the engines,  
And the clattering, crunching and banging  
    As the trees fell.  
With his family, he learned to understand  
How much their family relied upon  
    These trees . . .

As I grew, I came to depend  
Upon the sighing of the wind  
    Through the boughs,  
The shelter from the coastal rains,  
The fresh greening of spring's buds . . .  
I began to photograph, sketch, paint  
    Life  
As seen in the great northern forest  
    Or the cedars of the coast.

In my schooling, I learned the names, the life,  
The needs of our earth, about the air we breathe.  
    And,  
In these trees, I sought reflection, prayer, solitude . . .  
As he grew, he listened to the purr  
  
Of the big engines as they started up.  
He watched and wondered  
At the changing gears,  
The pistons, the hydraulics,  
And with his mind's eye,  
His hands sketched in careful detail  
The picture of the truck  
He hopes someday to drive . . .  
Through the trees  
Carrying  
    The trees . . .



*Photo by Louella Cronkhite*

*. . . Articles and Features . . .*

Now, I walk these woods  
Taking in the essence of the  
northern forest,  
Seeing saplings struggling for space  
Old growth forest providing homes  
For woodland creatures  
And now,  
I am his teacher  
I share the marvels that I see there,  
In the forest . . .  
I share through poetry, art, stories  
and lessons  
In my classroom.

I wonder how long the forests will  
last  
And whether my great-grandchildren  
Will ever  
Have the opportunity to walk along  
aromatic pathways  
Through greening forests filled with  
song . . .  
I see the fields expanding as the  
forests are taken down  
To break  
    The land  
I see the forests disappear in load  
after load of trucks  
Heading to the mills  
    With the trees . . .

Now he prepares to finish his  
schooling  
and go on with his life.  
His family are loggers  
    As were their family before them.  
Now he is my student and  
Listens patiently to my message of his  
role in the future of our forests . . .  
It is his time now, he feels, to make  
his money.  
He sees the forest which awaits him,  
where, in those tall slender trunks,  
stands his future.  
He sits still, thinking

And nods as we share common  
sights, sounds, memories of the  
forest . . .  
Soon enough he will have his own  
family.  
He wonders if he will be able to give  
them a good life.  
The fields are expanding, the  
companies grow bigger . . .  
He sees the trucks disappearing  
down the road  
    With the trees . . .

I will use the wood from the trees  
he harvests . . .  
    In the paper for my poems and  
pictures,  
And for lumber so I may build onto  
my home,  
I will use his wood to make my bird  
houses,  
I will buy more furniture made from  
the wood he has cut  
    And hauled.  
I will help him get the education he  
will need  
To become successful with the  
forest harvest,  
    To help him help himself  
In having a good and healthy life,  
To help him provide such a life as he  
chooses  
    For his family.  
Now I am his student  
As he patiently explains what the  
equipment does,  
What the terms mean,  
How the forest is harvested  
And I sense his hope and  
excitement  
    For the future  
As I learn that the hope for his  
future  
Lies within these trees . . .

He sits and he learns  
    And prepares to launch himself  
Into the next stage of his journey.  
He shares stories of what he has seen  
In the forest  
Where he would like to ride,  
He shares what he knows,  
    He shares his hopes,  
He is my teacher.  
He shows me how this forest will be  
his life  
    The realization of his dreams,  
The mainstay of his family lies within  
    These trees . . .

We share these trees  
We share the future  
We wonder how long  
The trees will be there  
For his children to walk along  
northern forest trails,  
For my children's children to write  
on the paper  
Made from the trees he has cut and  
hauled  
Or for any of us to know what it is  
to tell stories  
Around the campfire . . .

How can we keep forests for these  
children  
So they can learn, enjoy, make a living,  
BREATHE?  
We wonder to ourselves,  
Yet together . . .  
About  
A future that lies in these forest  
pathways  
And in these logs hauled down the  
road . . .  
A future we share,  
and bear in our hands, hopes,  
hearts . . .  
It is a future we share—through  
these TREES!

# Resource Feature:

## *Safety Guidelines for Physical Activity in Alberta Schools and Safety Guidelines for Secondary Interschool Athletics in Alberta*

*All activities have an inherent level of risk. Injuries are predictable and preventable.*

These two truths are the guideposts for the recently published *Safety Guidelines for Physical Activity in Alberta Schools* and *Safety Guidelines for Secondary Interschool Athletics in Alberta*. The first is a revised document and the second is a new publication. Both will be available in the spring to school boards, interested agencies and individuals.

The Alberta Centre for Injury Control and Research (ACICR), with the assistance of many groups and agencies, has coordinated the publication of these guidelines. The *Safety Guidelines for Physical Activity in Alberta Schools* builds on two previous versions that have been in use in Alberta since 1999. The end result is user-friendly

documents with the most comprehensive set of guidelines for school physical activities and interschool activities to date.

The safety guidelines can assist school authorities in the development of policies and encourage schools to develop plans and procedures for the safety and security of their students. These documents can be used to focus teacher attention on safe instructional practices in order to minimize inherent risk. Well-planned physical activity programs reduce the frequency and severity of injuries—in other words, they manage the risks.

Topics that relate to all activities, such as equipment and facilities, transportation, injury procedures and student responsibility, are covered. These documents do not include each and every activity that

a school may choose to include; instead, they cover the most common activities. School authorities can discuss and consider the guidelines outlined.

The Alberta Sport, Recreation, Parks and Wildlife Foundation (ASRPWF) provided funding for part of the project. Other organizations involved in this project were KIDSAFE Connection, the Sport Medicine Council of Alberta, the Alberta Teachers' Association through its Health and Physical Education Council, Alberta Learning, Alberta Health and Wellness, and Alberta Community Development.

These documents will be forwarded to all school boards. Check the ACICR website at [www.med.ualberta.ca/acicr](http://www.med.ualberta.ca/acicr) for a pdf version of these documents. Copies will be available for purchase from the Alberta Learning Resource Centre.

# New Resource to Help Evaluate the Success of Environmental Education programs

*Gareth Thomson and Jenn Hoffman*

Today more than ever, society needs high-quality environmental education programs that succeed in changing behaviours and moving values in the direction of sustainability and environmental conservation.

Effective and relevant evaluation improves these education programs and enables them to accomplish more of their objectives and goals.

However, methods of evaluation are often poorly understood, particularly by professionals who deliver environmental education programs. A recent survey of both these professionals and academics found a scarcity of techniques to measure the more challenging outcomes, such as values shift, behavioural change and benefits to the environment.

There are good reasons for this. Education is a complex process, and the outcomes of education—unlike the outcomes of a physical project, such as a stream clean-up—are difficult to measure. Even if a student develops a set of behaviours that demonstrate stewardship of the environment, can an environmental education program really claim the credit? How is this correlation measured? Program designers and funders spend long hours agonizing over how to measure such things as longterm behavioural change and

concrete benefits to the environment. A good evaluation program is not only difficult to design but expensive to carry out, and many groups lack the expertise or the resources to do this.

Two years ago we took on the challenge of trying to make things a bit easier for environmental education groups and funders. In partnership with GEOEC and with the generous support of Alberta Ecotrust and the McConnell Foundation, we have come up with an online document that attempts to outline and describe pertinent educational-evaluation methodologies and tools to connect environmental educators with solid, practical evaluation strategies, methods and advice.

Outcome-based evaluation is rapidly growing in popularity and use. We describe a program logic model and an evaluation scheme that use this model, using illustrative examples from existing environmental education programs and suggest outcome indicators that can be used to assess the difficult-to-measure long-term outcomes that pertain to values, behaviour and environmental benefits. This report also briefly reviews the basic tenets of environmental education, reports on 10 principles of excellent

environmental education and includes a glossary and other resources to assist the reader.

Does this document represent the final word on how to evaluate the success of environmental education programs? Far from it! We are just two environmental education practitioners who are trying to advance common knowledge of this important area. We are the first to admit the challenge of evaluating educational outcomes and the possibility that we have overlooked important areas in our document. This is a living document and we have committed to soliciting and incorporating any feedback to make it more useful and relevant for groups and funders.

Please have a look at the document at [www.cpawscalgary.org/education/evaluation](http://www.cpawscalgary.org/education/evaluation). We would be delighted to receive your feedback; e-mail us at [gthomson@cpawscalgary.org](mailto:gthomson@cpawscalgary.org). Thank you in advance for your contribution to the important field of environmental education.

*Gareth Thomson is the education director of the Canadian Parks and Wilderness Society, Calgary-Banff chapter. Jenn Hoffman is the education program coordinator of the Sierra Club of Canada, B.C. chapter.*

# Who You Gonna Call?

## Edmonton River Valley Programs: Walking in a Winter Wonderland

*Audrey Rocque*

"My favourite thing was everything, except for nothing!" five-year-old Lachlan reports of the River Valley Programs' Winter Wonderland program.

Our home-education group of 14 children, ranging in age from five to 12 years old, gathered together at Rundle Park. We enjoyed an afternoon of outdoor fun with an array of activities, including a scavenger hunt, tobogganing, parachute games, target toss and snow soccer. The children were exposed to map orienteering through a scavenger hunt. Other learning outcomes included patterns, cooperation, respect, safety on the hill and target practice.

Conar, 11, and Brendan, 8, said their favourite part of the program was the snow soccer, while Katie, 9, stated that she enjoyed the parachuting. Ty, 6, loved the sledding, and Emma, 7, preferred the scavenger hunt. Most of the children giggled during the brief

introductory history lesson where they learned that the park was once a dump!

River Valley Programs provided us with two exceptional leaders, Colin and Lee. They displayed flexibility with our group, were genuinely enthusiastic and were excellent role models for the children. Their consistent and positive interaction with our group meant that minimal parental involvement was required. Ten-year-old Chase said, "I liked Lee because he was more playful." His twin brother Will said, "I liked Colin." Will would have liked the program to last longer, an obvious indication that he enjoyed himself.

The facility had seating areas, washrooms and a fountain. River Valley Programs provided all the equipment—a bonus for parents like me who forget to bring a toboggan!

Overall, this was an excellent afternoon celebrating the end of

winter and we look forward to planning more fieldtrips with this organization. To check out the programs and class size breakdowns, call (780) 496-2983 or visit the website at [www.rivervalleyprograms.ecsd.net](http://www.rivervalleyprograms.ecsd.net). With one phone call, your class or group could be on their way to a fun-filled adventure with River Valley Programs.

*River Valley Programs is a joint partnership between Edmonton Catholic Schools and the city of Edmonton. Programs are offered year round to all groups, schools and organizations with curriculum ties in the areas of physical education, science, social studies and more. All staff are fully trained, qualified and possess Standard First Aid and CPR. All gear and safety equipment is included and most programs and equipment can be modified for people with disabilities.*



# Permission for Use of Photograph/Student Work

The Alberta Teachers' Association (ATA) requests the permission of parent(s)/guardian(s) for the reproduction of photograph(s) depicting their child(ren) and/or the reproduction of work assignment(s) completed by their child(ren). The photograph/work will be reproduced in the GEOEC specialist council newsletter publication, *Connections*, and is intended for the purpose of teacher professional development.

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Name of student(s) \_\_\_\_\_

I, \_\_\_\_\_ (printed name of parent/guardian of student(s)), agree to the use of this photograph/work for the purpose stated above.

Signature \_\_\_\_\_

Relationship to student \_\_\_\_\_

Address \_\_\_\_\_

Postal code \_\_\_\_\_

We have recently begun posting archived issues of *Connections* on the Internet ([www.geoec.org/connections](http://www.geoec.org/connections)). Are you willing to have your child's written work on the Internet as well?

- Yes, I agree to have my child's written work on the GEOEC Internet site.
  - Yes, I agree to have my child's written work on the GEOEC Internet site, using a first name only.
  - No, I do not want my child's written work posted on the GEOEC Internet site.
- 

Please fax or mail forms to

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Phone (780) 447-9491  
Fax (780) 455-6481



The Alberta Teachers' Association

# Global, Environmental & Outdoor Education Council

## Mission Statement

To promote involvement in quality global, environmental and outdoor education

## Objectives

- To provide a vehicle for Alberta teachers for professional development and communication in global, environmental and outdoor education
- To study and make professional recommendations about global, environmental and outdoor education issues
- To network with other provincial organizations that have similar concerns

## Membership

- Regular member—Members of the Alberta Teachers' Association, as specified in ATA bylaws, are entitled to full privileges of council membership including the rights to vote and to hold office.
- Student member—Student members of the ATA are entitled to all benefits and services of council membership except the right to hold office.
- Affiliate member—Persons who are not ATA members as specified by ATA bylaws receive all the benefits and services of council membership except the rights to vote and to hold office.

## Publications

- The GEOEC recognizes the wide range of interests among members and strives to foster the exchange of

ideas and provide information and articles relating to the various components of the elementary and secondary curricula through publication of *Connections*.

## Annual Conference

- The annual conference features a blend of activities, indoors and outdoors, ranging from hands-on workshops to social gatherings. All grade levels are represented in sessions. The emphasis is on practical information and application. The annual general meeting of the GEOEC is held in conjunction with the conference.

## Executive

- Volunteer teachers are elected to serve on the GEOEC executive.
- Contact the president of the GEOEC through the ATA office if you are interested in running for a position.
- Elections take place at the annual general meeting during the conference.

## Environmental Action Representatives (EARs)

- News to and from your provincial area is relayed through a person acting as a GEOEC representative for that school area.
- If you are interested in being an EAR for your school, please indicate so on your membership application.

## Enviroshops

- Various activities and workshops organized by the Council
- Presentations in different locations around the province

## JOIN NOW AND BECOME INVOLVED IN THE GLOBAL, ENVIRONMENTAL & OUTDOOR EDUCATION COUNCIL

Name \_\_\_\_\_ Alberta Teaching Certificate No. \_\_\_\_\_

Address \_\_\_\_\_ Postal Code \_\_\_\_\_

School or Employer \_\_\_\_\_ Grade Level/Specialty \_\_\_\_\_

New Membership

Renewal of Membership

\$25.00 Regular and Affiliate Membership

\$12.50 Student Membership

\$45.00 2-year membership

\$30.00 Subscription for nonmembers

\$65.00 3-year membership

I would be interested in serving as an Environmental Action Representative Yes  No

Make cheque payable to the Alberta Teachers' Association and mail it with the application to the Association at 11010 142 Street NW, Edmonton T5N 2R1.