

The Alberta Science Teacher



Volume 33, Number 1

September 2013



NO LIMITS!
November 14-16, 2013



***2013 ATA Science
Council Conference***

Radisson Hotel Edmonton South
4440 Gateway Blvd, Edmonton AB

Professional Development Road Trip Issue

Editor's Message

The Mix Tape Road Map Mixed Metaphor

This issue of the *Alberta Science Teacher* has been a long time coming. Originally it was going to be a Conference 2012 recap issue, but the winter days and months became increasingly full. Soon the time for the spring edition arrived, but a number of people asked me to wait while they put together some information for new programs and events. So I waited. Until now.

This edition is a metaphoric nod to the mix tapes of my youth—45 minutes per side, jam-packed eclectic master mixes of Beastie Boys, Spirit of the West, Alanis Morissette, the Tragically Hip, the Watchmen, A Tribe Called Quest, Bjork and Sloan. This issue captures the spirit of one of those tapes that you'd wear out driving back and forth across the province, singing out loud and dancing at stop signs. This issue is split into two parts, tied together by the theme "PD Road Trip." Now, at the beginning of the school year, is the time to take stock of your surroundings, look to the horizon and plan your professional development journey for this coming school year.

Side A of your *PD Road Trip* mix tape includes information about the upcoming Science Council conference (which you'll want to attend) and the full list of Alberta teachers' conventions (where you're desperately needed as a presenter). These are matters you want to think about now, talk to your colleagues about and take immediate action. The Science Council conference is coming up in November and teachers' conventions choose their speakers in the fall (at the latest).

Side B of your *PD Road Trip* mix tape slows down a bit and provides some mellow information to consider on graduate degrees (so you can explore admission) and book suggestions (to read for your own growth or for use in a PD book club) and information about conducting action

research (so you and your colleagues can explore new methods in teaching and learning). It also suggests a greatest hits playlist—some of the best articles to appear in the ATA Science Council's professional journal, the *Alberta Science Education Journal*. The selected articles were curated because they are poignant, relevant and valuable to consider as the school year starts.

Use both sides of this issue to guide you in the development of your Teacher Professional Growth Plan or your school's annual renewal plan. Remember that humans are social animals. Don't cut out the social networking from your professional and school growth! Read together, research together, plan together and travel together.

Hopefully, this long-overdue issue will serve as a road map that sets you on your way to an awesome year of exploration and growth. Have a great trip!

Dan Grassick

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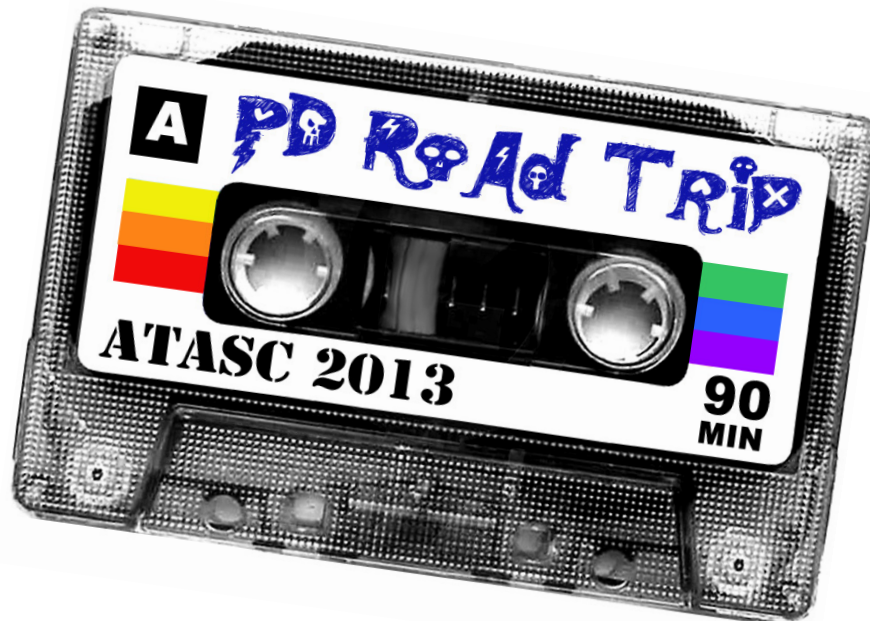
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The A Side: Conference, Conventions and Considerations 2013/14



President's Message



I am super excited to write my first president's message to the Science Council membership. I have been on the executive for several years—I started as elementary

director in 2007 and moved to technology director in 2008. I have enjoyed being the registrar for the past four Science Council conferences and

working closely with the conference committees to build amazing conference experiences for you.

The 2012 Alberta Science Council conference was a wonderful success, and I would like to thank Daniel Espejo and Don McLaughlin for all their hard work. There were tonnes of quality speakers and outstanding delegates. I tried very hard to get bobsledding times at Calgary Olympic Park for George Kourounis and me, but it just wasn't meant to be in November (we were recently talking, and we hope to meet up in Calgary soon to race down the hill at 120 kph). Bill Nye gave an incredibly motivating speech, and I was very impressed with the answers he gave to our questions. I was also able to catch Jeremy Hansen's

session, “Becoming an Astronaut: A Journey of Life-Long Learning,” and renewed my love of space.

I presented my “Genetics of Angry Birds” session at the 2012 conference and was convinced to present it at two teachers’ conventions in February. First, I was scheduled to be at the Calgary City Teachers’ Convention on February 14, but the weather prohibited me from making it down—I started the drive on Wednesday night, and the 300-kilometre drive from Cold Lake to Edmonton took me five hours and I observed 14 cars in the ditch. I couldn’t make it all the way to Calgary, but I’ll make it up to Calgary science teachers next year, I promise! I did make it to the Northeast Teachers’ Convention, on February 15;

we created some amazing Angry Birds and had a great time.

I hope to meet you at this year’s conference, which is scheduled for November 14–16 at the Radisson Hotel in Edmonton, Alberta. We have another lineup of awesome speakers, including Wade Davis, Geoff Green and Rex Murphy.

I invite you to contribute to our Science Council in any way that you can. We always need volunteers for our executive, and contributions for our newsletter, journal and online resource database. If you need more information or have any questions, contact me at ATASCPresident@gmail.com.

Here’s wishing you a happy new school year!

Rose Lapointe

Justin Bieber Concert



ATA Science Conference 2012



Chris Sudyk, 2012



NO LIMITS!

2013 ATA Science Council Conference

Radisson South Hotel, Edmonton, AB • November 14-16, 2013

What is this conference all about?

Every year, the ATA Science Council organizes a world-class conference offering professional development workshops for science teachers of all grade levels. Sessions are offered by teachers, researchers and professional speakers who are experts in the Alberta science programs of study. Every year a handful of high-profile keynote speakers (such as David Suzuki, Jane Goodall and Bill Nye the Science Guy) are selected to enhance the overall draw of the conference.

The current program of sessions and workshops is being developed, but we are proud to announce three of our featured keynote speakers.

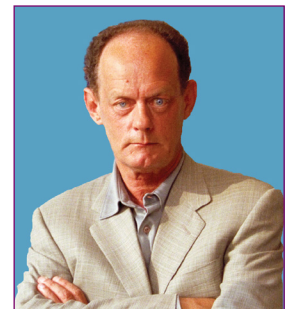


Geoff Green—Friday Morning Keynote

The consummate expedition leader, for more than two decades Canadian adventure educator and speaker Geoff Green has been leading expeditions and adventures from pole to pole. Founder of the award-winning program “Students on Ice” since the turn of the millennium, Geoff has led more than 2,000 students, scientists and experts from more than 50 countries to the polar regions to discover the beauty and fragility of the region.

Rex Murphy—Friday Banquet Keynote

Social commentator and editorialist, the one and only Rex Murphy is a trusted face and voice across Canada on CBC television and CBC Radio. His intellect and biting humour cut to the heart of profound social and political issues. From politics to pop culture, he brings a unique and often controversial perspective to current events.



Wade Davis—Saturday Afternoon Keynote

A National Geographic Society (NGS) Explorer-In-Residence, Wade Davis was named by the NGS as one of the Explorers for the Millennium. He has been described as a “rare combination of scientist, poet, scholar and passionate defender of all life’s diversity.” In recent years, Wade’s work has taken him from East Africa to Polynesia, Peru to Mali, Nepal to Greenland. As he travels, Wade collects images, stories, and experiences that can be stitched together into a tapestry that celebrates the diversity of the human spirit but warns of the ever-present shadow that climate change is having on our world.

Where and when is this year's conference?

The 2013 ATASC Conference will be held at the Radisson Hotel Edmonton South, located at 4440 Gateway Boulevard, Edmonton, on November 14–16, 2013.

Who can attend?

This annual professional development event is perfect for beginning and veteran teachers alike. Student teachers are welcome. Now is the time of year to get a group of teachers from your school or district together.

All attendees must be members of the Alberta Teachers' Association (including teachers who are currently working for Alberta school boards, pre-service teachers who are members of their university student local, and educators who have paid for ATA associate membership).

Every active ATA member is entitled to become a member of one of the association's 21 specialist councils free of charge. Delegates to the Science Council conference must also be current members of the Alberta Science Council. New Science Council members (or those teachers with membership in another specialist council) can sign up as part of the registration process.

How much does it cost?

The cost for a single delegate attending Thursday to Saturday is \$375. This includes access to all sessions, lunch each day, a banquet dinner and all refreshments at coffee breaks, but does not include hotel accommodation, breakfast or other dinners. Additional banquet tickets are available for \$55.

A limited number of Saturday-only registrations are available for \$200.

How do I reduce the cost of my registration?

There are a number of opportunities available for reducing the cost of attendance.

In addition to the personal development funding available to you through your local, school and district, the ATA Educational Trust provides

annual Specialist Council conference grants of up to \$400. Every October, the names of eligible applicants are entered in a draw and a set number of names are selected at random. The deadline for application for 2013 is September 30. More details about scholarships, grants and bursaries are available on the ATA website under the For Members menu.

Teachers who speak receive \$200 toward their conference registration fees. Potential speakers must register as delegates; the discount is applied once speaking contracts are confirmed.

How do I sign up to be a speaker?

It's easy to send in a speaker proposal! On our conference registration site, <https://event-wizard.com/ATASC2013/0/welcome>, click the tab at the top that says "Want to be a Speaker?" You'll be led to an online form tool where you type in the title, length and details of your proposed session. Someone from the Science Council will get back to you right away.

The deadline for session proposals is September 15.

How do I register for the conference?

Our conference registration site, <https://event-wizard.com/ATASC2013/0/welcome>, has everything you need for conference registration. Session schedules, maps and news will be posted closer to the event date.

Who can I contact if I have more questions?

Trinity Ayres, Conference Director
trinity.ayres@cssd.ab.ca

Dan Grassick, Registrar
ATASCregistrar@gmail.com

Danika Richard, Sponsor Coordinator
danika.richard@nlsd.ab.ca

Derice Layher, Assistant Director/Booth Coordinator:
dericelayher@gppsd.ab.ca

Carryl Bennet-Brown, Assistant Director/
Volunteer Coordinator:
carryl.bennettbrown@ata23.org

2014 Teachers' Conventions

One of the truly great perks of being an educator in Alberta and a member of an ATA local is that two days of every year are set aside for you and your colleagues to assemble for teachers' convention. Believe it or not, Alberta's teachers' conventions are the envy of teachers and professional associations coast to coast and around the world. Very few jurisdictions believe so much in teacher professional growth that two days are scheduled each year for educators to connect with colleagues, attend workshops, and plan ways to improve the teaching and learning in their classrooms. Large events, like the annual Calgary and Edmonton conventions, are among the largest gatherings of teachers on the planet. Some of the smaller conventions require teachers to drive to neighbouring cities to access venues large enough to host all the educators from various widespread locals. Most amazing of all is that these conventions, regardless of their size, are planned by committees of full-time teachers who are selected by their local membership. The dedication of convention planners and teacher delegates alike is impressive.



Speak at a Teachers' Convention: Learn a Little, Share a Little, Earn a Little

The large majority of workshops and sessions provided at teachers' conventions are offered by classroom teachers. Many of you have probably presented or attended a colleague's session at your local convention, but have you ever considered travelling to another convention elsewhere in the province to speak? Conventions of all sizes need new speakers with fresh ideas to generate discussion and promote change!

As you know, you learn a lot about something when you have to teach it. Preparing to give back to your colleagues by presenting at convention (or a specialist council conference) helps you further master your subject matter and develop resources that can be used in your teaching, and also stimulates research on your subject of interest. Simply put, you become a better teacher by preparing to present. If you've been looking for a meaningful and worthwhile goal for your Teacher Professional Growth Plan, speaking at a teachers' convention is it!

Most convention associations are able to provide some type of remuneration to speakers, which may include an honorarium to compensate them for the time spent preparing, travel expenses for driving between towns, hotel accommodation the night before or after the session, and substitute teacher coverage the day of the presentation.

Teachers' convention planning groups are currently looking for speakers. Most conventions finalize their speaker lists in September and October. *Act now!*

Schedule of Upcoming Teachers' Conventions

***North Central Teachers' Convention—
February 6–7, 2014***

Shaw Conference Centre, Edmonton
www.mynctca.com

***Calgary City Teachers' Convention—
February 13–14, 2014***

Telus Convention Centre, Calgary
www.cctca.com

***Northeast Teachers' Convention—
February 13–14, 2014***

Ramada Conference Centre, Edmonton
netca.teachers.ab.ca

***Central Alberta Teachers' Convention—
February 20–21, 2014***

Red Deer College, Red Deer
www.mycatca.com

***Palliser District Teachers' Convention—
February 20–21, 2014***

Telus Convention Centre, Calgary
www.palliserconvention.org

***South Western Alberta Teachers' Convention—
February 20–21, 2014***

University of Lethbridge, Lethbridge
www.swatca.ca

***Southeastern Alberta Teachers' Convention—
February 20–21, 2014***

Medicine Hat College, Medicine Hat
www.seatca.ca

***Greater Edmonton Teachers' Convention—
February 27–28, 2014***

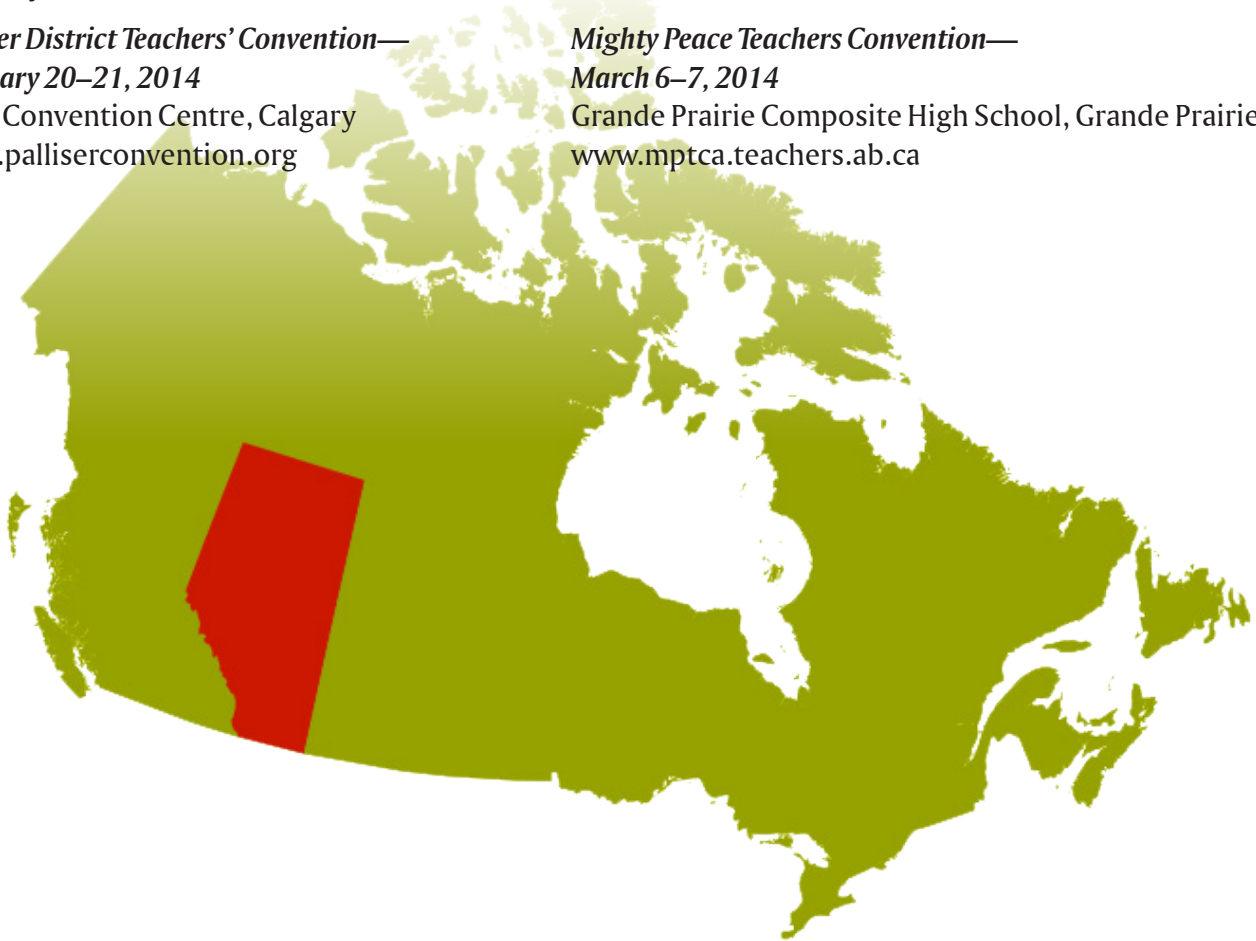
Shaw Conference Centre, Edmonton
www.getca.com

***Central East Alberta Teachers' Convention—
March 6–7, 2014***

Shaw Conference Centre, Edmonton
www.ceatca.teachers.ab.ca

***Mighty Peace Teachers Convention—
March 6–7, 2014***

Grande Prairie Composite High School, Grande Prairie
www.mptca.teachers.ab.ca



ATA Educational Trust Research Grant Info

Curriculum or Research Project Grants

Each year, the ATA Educational Trust awards a number of project grants of up to \$3,000 to help individuals or groups conduct research or develop practical classroom materials for Alberta teachers. The materials and resources produced through these grants are placed in the ATA library, where they can be borrowed by interested teachers.

Any individual or group involved in education and planning to undertake such a project during the next school year is eligible to apply. Submissions in the areas of special education, global and environmental education, languages, francophone education, Aboriginal education, and early childhood education are of particular interest to the Trust.

Applying for a Project Grant

Grant applicants must complete, in detail, the application form included with this issue of the *Alberta Science Teacher* and submit to the ATA Educational Trust no later than May 1. Applicants should send three signed and dated copies of their proposal to the ATA Educational Trust, 11010 142 Street NW, Edmonton AB T5N 2R1. To be considered, applications must be received on or before the close of business on May 1, 2014. Faxed or e-mailed applications will not be accepted.

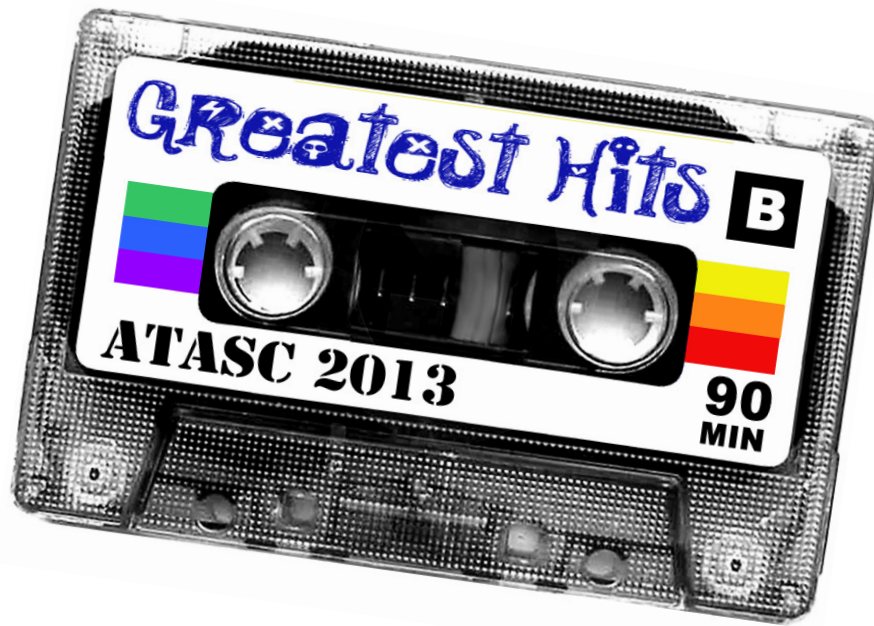
How Applicants Are Selected and Awarded

After reviewing the applications that meet the eligibility criteria, the Trust board selects those that, in its view, will be of most practical benefit to teachers, parents and/or students in the province. The maximum that the board will allocate to a single project is \$3,000. All applicants are notified in June as to whether or not they were selected to receive a project grant. Successful candidates are asked to confirm in September that they have accepted the amount offered and that they are proceeding with the project. In the fall, ATA locals (or the Trust board, in the case of nonmembers) will organize special events at which successful candidates will receive a framed award certificate. Successful applicants will be sent an advance cheque for a portion of the total amount granted. The remaining grant will be paid (up to a year later) after the recipient has completed the project and submitted the following:

1. A detailed statement of the expenses incurred, accompanied by receipts equalling or exceeding the total amount of the grant (Expenses incurred before the grant was awarded are not eligible.)
2. Two original copies of the final report or teaching resource that has been produced. These materials must acknowledge the financial support of the Trust.

Projects must be completed by August 31 of the year following the award.

The B Side: Mellow Information to Consider



Alberta Science Education Journal Greatest Hits

As a teenager and young adult I remember spinning ABBA *Gold*, Bryan Adams's *So Far So Good*, *Add It Up*, by the Violent Femmes, and the first disc of Michael Jackson's *HIStory: Past, Present, and Future* until they were hot coming out of the CD player. Let's face it—everyone loves a greatest hits collection! Whether it's a collection of songs by a beloved band or even a compilation of singles from one-hit wonders, it's good to be able to go to one album for your fix.

The A side of albums was traditionally where record companies would place tracks and singles that they wanted to promote. Initially, songs of lesser quality were hidden on an album's B side. Eventually, however, the B side of records and

tapes became the place where artists would hide hidden gems or remixed versions of their songs that were often just as good as or better than the radio singles.

This second side of your *PD Road Trip* mix tape includes some hidden gems, including a list of greatest hits published by the ATA Science Council in its peer-reviewed periodical, the *Alberta Science Education Journal*.

Since this issue of the *Alberta Science Teacher* is all about planning your professional development road trip for the year, the following articles were selected because they are especially representative of current and emerging issues that you and your colleagues might be facing, or because they

are great professional reading to kick off a year of growth in a collaborative work group at your school.

Thanks to the academics who contribute articles to the ASEJ every year, and especially to superstar editor, Dr Wytze Brouwer.



Links to PDFs of all back issues including those containing the articles below can be found at <http://sc.teachers.ab.ca> under the Council Publications menu. If you need copies of the articles from newer issues (2012/13) send an e-mail to grassick@ualberta.ca.

- “Right Time, Wrong Place? Teaching About Climate Change in Alberta Schools”
—Joan Chambers (ASEJ, December 2011)
- “Integrating Aboriginal Perspectives: Issues and Challenges Faced by Non-Aboriginal Biology Teachers”
—Tracy Onuczko and Susan Barker (ASEJ, July 2012)
- “Getting to the Science: Helping English-Language Learners Show What They Know”
—Jill Munro, Marilyn L Abbot and Marian J Rossiter (ASEJ, June 2013)
- “Professional Development in Elementary Science: New Conversations Guiding New Approaches in Teachers’ Work and Learning”
—Bonnie Shapiro (ASEJ, November 2006)
- “Research and Resources to Support Leadership and Reflection on Multicultural Approaches in Science Education”
—Bonnie Shapiro and Kamal Johal (ASEJ, 2009)
- “Problem-Based Learning”
—Bob Ritter (ASEJ, February 2008)

Dan Grassick

Working Together in the Shadow of the *Mistakis*: Indigenizing Science Education at the University of Calgary

Oki! Salut! Greetings! I am a Métis academic and educator originally from the place where the Bow and Elbow rivers meet and the *mistakis*¹ could be seen in the west on a clear day. It has been my sincere pleasure to return home this summer to join the Faculty of Education at the University of Calgary as part of an initiative to enhance Indigenous education on campus, in the community and beyond. I will be working alongside four other new Indigenous scholars in e-learning, educational psychology, literacy and leadership; the mandate of my appointment is to develop and deliver courses, conduct research, and build community partnerships in Indigenous science education and related fields.

One of the first questions that people often ask when I tell them about my new appointment is, “What is Indigenous science education?” My typical response is that there are several interpretations of this term. One interpretation of Indigenous science education is the promotion of successful theories and practices for teaching Western science to Indigenous learners. This is an important aspect of Indigenous science education, because it involves supporting Indigenous learners’ increased success in Western learning environments.

¹ The Blackfoot word *mistakis* denotes the western horizon line, which is traditionally used for navigation and map-making, created by the Rocky Mountains when viewed from the foothills (Binnema 2001).



Another interpretation of Indigenous science education might involve more of a paradigm shift for those steeped exclusively in Western science. This view involves considering Indigenous philosophy and knowledge of how the world works on its own terms as another form of science (Snively 2009, 34). Considering Indigenous science through this lens also allows us to consider its relationship to Western science, and this brings the two into a dynamic dialogue for the benefit of Indigenous and non-Indigenous students alike.

One way to enact this second form of Indigenous science education is in a standard classroom or laboratory setting using Western methods. However, taking this one step further involves engaging with Indigenous science through traditional Indigenous pedagogical approaches, such as learning through experience and demonstration on the land under the guidance of elders and other knowledge holders (Armstrong 1987; Simpson 2002). In my experience, the most effective contemporary educational initiatives bring together both approaches, resulting in a rich and fulfilling experience for all those involved.

In this spirit, please do not hesitate to contact me if you are interested in collaborating on a study or initiative, or would simply like to exchange ideas or resources.

References

- Armstrong, J.C. 1987. "Traditional Indigenous Education: A Natural Process." *Canadian Journal of Native Education* 14, no 3: 14–19.
- Binnema, T. 2001. "How Does a Map Mean? Old Swan's Map of 1801 and the Blackfoot World." In *From Rupert's Land to Canada: Essays in Honour of John E. Foster*, ed T Binnema, G J Ens and R C Macleod, 201–24. Edmonton, Alta: University of Alberta Press.
- Simpson, L. 2002. "Indigenous Environmental Education for Cultural Survival." *Canadian Journal of Environmental Education* 7, no 1: 13–25.
- Snively, G. 2009. "Money from the Sea: A Cross-Cultural Indigenous Science Activity." *Green Teacher* 86, 33–38.

Gregory Lowan-Trudeau

Gregory Lowan-Trudeau, PhD, is assistant professor of Indigenous science education in the Faculty of Education at the University of Calgary. He can be reached at gelowan@ucalgary.ca; his website is www.kichigami.com.

Consider the Following: New Interdisciplinary Graduate Programs

It can be difficult for classroom teachers who want to pursue graduate studies to find a program that they're interested in. It seems as though every university has educational leadership and counselling programs, but if you're interested in science, you'll have to cobble something together in a "curriculum and learning" department. What if you're looking for advanced studies in science, specifically a program that is as interdisciplinary in its approach as you are in your work? The University of Calgary has just launched a number of programs that can be used as a graduate certificate (CertEd) or toward completion of a graduate diploma (DipEd) or master of education degree (MEd).

All programs have application deadlines of March 15. Preparing for admission can take time. If you're interested, make sure that your teacher professional growth plan reflects the steps you'll go through to prepare your application and spend some time developing ideas for potential research questions that you're eager to explore during your course work.



Outdoor Education

This program aims to provide professionals (in fields of practice such as education, kinesiology, recreation, environmental programs, outdoor organizations, etc) with the necessary knowledge, skills and experiences for them to successfully initiate and develop outdoor programs in their respective settings. This research-informed graduate four-course cohort will explore the fundamental concepts that underpin the development of outdoor education programs in the K–12 school setting and beyond.

Coordinator

Dr Gavin Peat, peat@ucalgary.ca
[http://ucalgary.ca/gpe/content/
outdoor-education](http://ucalgary.ca/gpe/content/outdoor-education)

Education for the Environment

Environmental education at its best contributes to the development of a well-educated public able to address complex issues that affect and benefit society, promote environmental health, address social justice issues and contribute to well-being. This program of study is designed for educators who wish to build experiential and foundational depth in environmental education by developing new understanding, caring and concern for how human beings are connected to and affect the natural world. Students will work with dedicated and dynamic environmental educators who seek to build synergy, community and

connection. We invite students from a wide range of backgrounds and levels of expertise to participate in this dynamic program.

Coordinator

Dr Bonnie Shapiro, bshapiro@ucalgary.ca
[http://ucalgary.ca/gpe/content/
education-environment](http://ucalgary.ca/gpe/content/education-environment)

Storytelling and the Ecological Heart of Curriculum

This four-course cohort will explore the relationships between ecological consciousness and storytelling in a vibrant, heartening understanding of curriculum. In contrast to some versions of environmental education, we use the term *ecological consciousness* to point to a way of experiencing all and any aspects of the living disciplines entrusted to teachers and students in schools as constituted by relations of dependent co-arising and narrative patterns of interdependence of gatherings, places, plots and ancestries. Parallels between ecological consciousness and both hermeneutics and threads of Buddhist epistemology/ontology will be explored in order to broaden their applicability to sustainable classroom practices.

Coordinators

Dr David Jardine, jardine@ucalgary.ca and
Dr Jackie Seidel, jlseidel@ucalgary.ca
[http://ucalgary.ca/gpe/content/
storytelling-amp-ecological-heart-curriculum](http://ucalgary.ca/gpe/content/storytelling-amp-ecological-heart-curriculum)

Books to Read: On Richard Louv and Nature-Deficit Disorder



Richard Louv

At the March Earth Matters conference cosponsored by the Alberta Teachers' Association's Global Environmental and Outdoor Education Council (GEOEC), in Canmore, Alberta, I had the opportunity to hear a keynote address by Richard Louv. I'm sure many

of you have heard of Louv and the term *nature-deficit disorder*, which he coined in his 2005 book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*.

Available in paperback, hardcover, audiobook and e-book, *Last Child in the Woods* is a poignant reflection on Louv's upbringing, which he juxtaposes with the way today's youth are raised in North America. Instead of exploring local forests and wetlands, Louv points out how technological innovation, "family busy-ness" and hyperlitigious society have created a generation of youth who can identify dozens of brands by their logos and slogans but can't identify a single plant growing in their immediate area. Louv laments the loss of this intimate familiarity with the natural world and coined the term *nature-deficit disorder* (NDD) to describe a whole syndrome of symptoms that teachers and parents see in their children that could be treated, he argues, with more time spent outdoors.

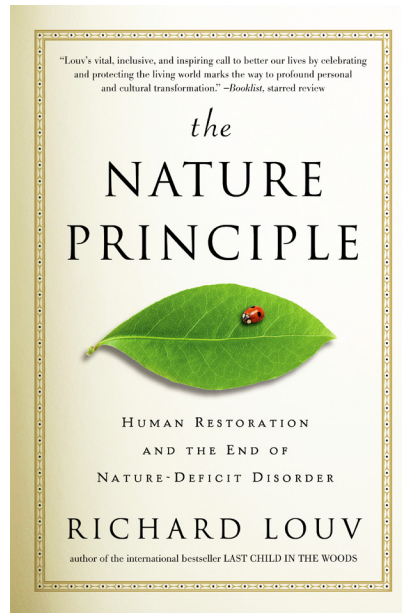
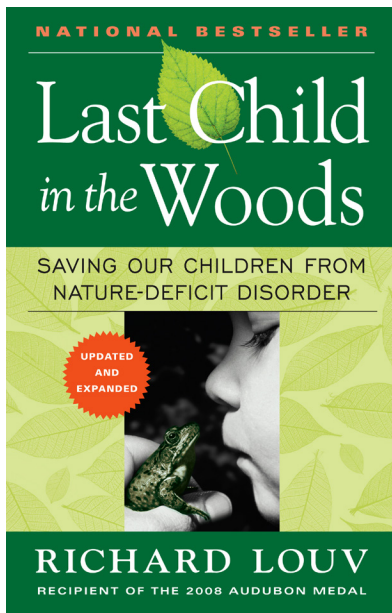
Eight years after the publication of *Last Child in the Woods*, and three years after its follow-up work, *The Nature Principle: Human Restoration and the End of Nature-Deficit Disorder*, Louv spoke to the

Canmore crowd about new developments and statistics that stem from his work and confirm his conclusions.

Fully one-third of boys in the US, Louv says, are diagnosed with ADHD; many receive treatment involving psychostimulants such as Dexedrine, Ritalin or Concerta. This is significant, not only because of the apparent incidence of this disorder, but because, for all intents and purposes, ADHD didn't exist until thirty-three years ago. Attention deficit disorder wasn't mentioned until the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM III) came out, in 1980. Previously, youth with attentional difficulties had been discussed as suffering from "minimal brain damage" or "hyperactivity," or being in the throes of the "hyperkinetic reaction of childhood." I'm not so naive as to believe that some people don't struggle to maintain their focus—I myself wrestle daily with my attention span in my work as a doctoral student. What I want to point out and what Richard Louv suggests is that the difficulty that many of our youth have sitting still and focusing in class may not be a symptom of a cognitive disability that should be treated with medication.

Louv tells the story of famous nature photographer Ansel Adams, who was kicked out of school for having a chronic case of the "wiggles." His parents toured him around the American west, including Yosemite National Park, where he eventually captured some of his most famous shots. Li'l Ansel's hyperkinetic reaction of childhood was treated with nature, and he eventually found a passion that married a love of wild spaces with a high degree of focus and patience.

In his address, Louv referred to a number of studies that have found that there is therapeutic value in getting children (and older humans)



outside. Being outdoors, he says, decreases levels of blood cortisol, the stress hormone in your blood. The *British Journal of Sports Medicine* published a finding that walking through a natural setting decreases heart rate (as measured by electrocardiogram data).¹ Furthermore, and more specific to the question of ADHD and NDD, time outside decreases the symptoms of attention deficit disorders. Recently, Richard Louv spoke to a group of American pediatricians and general practitioners; he happily reported to the conference crowd that some of these physicians are now prescribing time in nature to their young patients and recording positive results. Study after study finds that time in nature leads to mental health benefits. Even more amazing is the finding that the more biological diversity in a natural area (in other words, the more diverse the species per square area), the more beneficial the health effects.

I'm sure I'm not the only teacher who sits sadly watching students at recess and lunch with their eyes glued to smartphone screens instead of playing outside or who struggles in his own life to

¹ Aspinall, P, P Mavros, R Coyne and J Roe. 2013. "The Urban Brain: Analysing Outdoor Physical Activity with Mobile EEG." *British Journal of Sports Medicine* Online First, March. doi:10.1136/bjsports-2012-091552

strike a balance between "screen time" and "real time." So here's my thinking. Now, at the beginning of the school year, is the perfect time for your school staff, your book club or your parent council to pick up one or both of Richard Louv's books and engage in a critical analysis of not just his thoughts, but of your context. How can you increase nature content in your school, community and home? Now's the time to explore and address this question, for the sake of the kids.

Louv wrapped up his presentation with a list of seven changes our society needs to make if we want to address NDD and its negative health and economic effects.

Not all are relevant here, but the following are a few ideas to chew on as you look up a copy of Louv's books.

- The public must be educated about the value of environmental education. How do you and your school champion the cause of protecting our natural environment?
- It's not enough to learn about nature—students have to learn *in* nature. How often do your students go outside to learn?
- The more high tech we become, the more we need nature. How do you offset screen time with outdoor time?
- Paint a picture of a nature-rich future. We don't talk about probable and preferred futures with our students. If we continue the way we're going industrially, where will this take us? How does this look compared to world that we most desire? How do we start working toward the future we prefer?

Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder. 2008. Chapel Hill, NC: Algonquin Books.

The Nature Principle: Human Restoration and the End of Nature-Deficit Disorder. 2011. Chapel Hill, NC: Algonquin Books.

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* The 2013/14 executive will be elected at the November 2013 conference.

The Alberta Science Teacher is one of the official publications of the Science Council (SC) of the Alberta Teachers' Association. SC Bylaw 9.4 states: *The Alberta Science Teacher* shall reflect on the contributions and activities of Alberta science teachers in the classroom.

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