



Canadian Earth Science Teacher  
Workshop Program

EdGEO is a national program that funds teacher workshops on the Earth sciences with grants of up to \$3,000. It is 100% volunteer run, from its national co-chairs to its workshop organizers in communities across Canada.

The workshops are designed to introduce teachers to Earth science content that they can take back to their classroom. Each teacher leaves with lots of resources, hands-on lesson plans, and, most importantly, a comfort level for teaching the Earth sciences – a subject few teachers have any background in.

EdGEO has a proven track record. Since its beginnings in the early 1970s, it has connected with thousands of Canadian teachers through its workshops. The multiplying effect of a teacher's participation in an EdGEO workshop is compelling. Each participating teacher will be responsible for educating hundreds of students over his or her career. As a result of a teacher's participation in an EdGEO workshop, his or her future students will learn about the impact of the Earth sciences on their daily life, be better equipped to make decisions about issues that include an Earth science component, and, in some cases, find a passion for the subject that will lead them to become part of the next generation of Earth scientists.



## NATIONAL WORKSHOP PROGRAM NEWS

Issue 18 | 2015/2016

EdGEO is coordinated by the Canadian Geoscience  
Education Network, the outreach arm of the  
Canadian Federation of Earth Sciences

### EdGEO's Return on the Dollar

Teachers participating in EdGEO workshops take away the knowledge, tools, and confidence to teach Earth science to their students. So what does it cost?

- ★ \$70 per teacher participant in a workshop
- ★ \$2.80 per student in each participant's class the first year after
- ★ 28¢ per student during the participant's next ten years of teaching

*Costs based on workshop expenses for the past year of \$15,550 and 220 participating teachers, and on an average class size of 25 students.*

# EdGEO Workshops 2015–2016



**Halifax** In a one-day workshop, held in conjunction with the annual conference of the Nova Scotia Association of Science Teachers, educators were introduced to key processes that underpin the science of geology, including the geological time scale, tectonics and paleoenvironments, and the rock cycle. The workshop included many hands-on activities and a field trip to some sites that represent important “moments” in Nova Scotia’s geological history. A key feature of the workshop was a discussion on how to use the recently published book, *Four Billion Years and Counting: Canada’s Geological Heritage*, and its online resources in the classroom. 🧑 20

**Fredericton** The University of New Brunswick’s Quartermain Earth Science Centre hosted teachers of all grade levels and subjects in a workshop focused on providing ideas and inspiration for teaching Earth science. The workshop included presentations about Earth systems and resources, introduced and discussed geological concepts, and provided hands-on methods and ideas for using the indoor and outdoor environment in their teaching. 🧑 20

**Ottawa** The Ontario Stone, Sand and Gravel Association, Mining Matters and Carleton University partnered to lead a field trip for teachers to local operating sand pits and stone quarries. It provided them with an in-depth understanding of the aggregate industry and its importance to our communities. 🧑 30

**Northern Ontario** *Mattawa*: The Canadian Ecology Centre’s annual five-day Teachers’ Mining Tour introduces educators to many aspects of modern mining. It links the Ontario curriculum to mining technology, environmental stewardship, safety in the workplace, careers, and minerals and the consumer. Two sessions were held in 2015. Both included visits to open pit and underground mines, rehabilitation sites, and manufacturing facilities. 🧑 48

**Sudbury** The acclaimed science centre Dynamic Earth invited French and English teachers from the Sudbury area to attend a half-day Mining Matters workshop to learn how to deliver Earth science curriculum activities using the educational kits provided to each participant by Mining Matters. While the teachers attended the workshop, their students were offered special Modern Mining and Technology Week programming at Dynamic Earth. 🧑 30

**Vancouver** Held at Science World as part of the Mitchell Odyssey Symposium, the workshop introduced teachers to *Four Billion Years and Counting* and the many educational resources on its website. The goal was to share these resources and related hands-on activities to explore how Canada’s landscapes, fossils, and rocks have changed over time. The workshop highlighted concepts in plate tectonics, geological time, and fossils in terms of Canada’s geoheritage. 🧑 50

**Whitehorse** The Yukon Geological Survey hosted a one-day Earth science workshop for elementary and secondary school educators as part of the 2016 joint annual conference of the geological and mineralogical associations of Canada. The workshop included a hands-on learning session and a field trip to local geological exposures. Earth science classroom teaching resources and activities, the geology of the Whitehorse area, and curriculum connections were the themes explored. 🧑 20

🧑 \_\_\_\_\_  
Denotes Attendance





## A Workshop that Really Works

For 22 years, Jennifer Bates has been working through the Atlantic Geoscience Society's (AGS) Nova Scotia EdGEO Workshop Committee to deliver an annual EdGEO workshop for Nova Scotia educators. The success of the workshops can be measured by an average yearly attendance of about 25 teachers.

The workshops are never the same and are held in different locations of geological interest around the province. Changing themes, such as coastal processes, fossils, and the geological history of an area, give structure to the workshop and allow a varied mix of volunteers to deliver the program. The constants are presentations that encourage teacher participation, a field trip to a site where teachers can collect specimens or later take their students, and lots of classroom resources to take away.

Another feature is that teachers often help organize the workshop and work with the Earth scientists as co-presenters. Jennifer says, "A tag-team approach has been really successful, as the teachers focus the content to how it can be best used in the classroom." It has also strengthened connections between Earth scientists and teachers – for example, Tracy Webb, a teacher at Horton High School, has just become chair of the AGS Education Committee.

Funding from EdGEO and the Nova Scotia Association of Science Teachers is key to the success of the workshops, as is the support from the local geoscience community. Earth scientists from universities, and the federal and provincial geological surveys help organize and lead the workshops, as well as providing resources, the use of their facilities, and transportation.

**“ I am blown away by the planning, the level of instruction, and the passion of the presenters. –Participant, Nova Scotia EdGEO workshop**



When asked for advice on how to put on a workshop that really works, Jennifer gave the following tips:

**01** Find people who have put on workshops and pick their brains for what works best.

**02** Focus on activities that engage the teachers.

**03** Make it fun and interactive, and don't let the presentations become lectures.

**04** Use the field trips to let the teachers see the landscape with new eyes.

**05** Include local resources, including museums and interpretative centres.

## How to Apply for an EdGEO Grant

It's simple! Go to the EdGEO homepage ([www.edgeo.org](http://www.edgeo.org)) and click on "Workshops." You will find a section with tips on how to organize a workshop and another on how to apply for funding. When you click on "Apply for Funding," you will be asked to set up a password-protected account and then walked through the steps for completing the application. The EdGEO national program will provide up to \$3,000 per workshop to cover expenses such as teaching resources, field trip transportation, and publicity.

# Spotlight On Our Sponsors

## The Canadian Geoscience Education Network

To support its national program of workshops, EdGEO relies on funding support from organizations that share its vision and goals. Its longest standing sponsor is the Canadian Geoscience Education Network (CGEN), which has provided EdGEO with annual grants and in-kind support stretching back to CGEN's founding in the early 1990s. Indeed, EdGEO is intrinsically bound to CGEN, and has, for many years, been one of CGEN's core programs, with many CGEN members organizing and leading EdGEO workshops.

CGEN's goal is to raise public awareness of the Earth sciences in Canada through improving the quality of Earth science education and public outreach. Its membership is a dynamic blend of over 500 Earth scientists, educators, and communicators from across the country. These members share information and skills, learning from one another and helping each other to build and promote activities in all parts of Canada. CGEN is also plugged into the national Earth science community as the outreach arm of the Canadian Federation of Earth Sciences.

CGEN and EdGEO share much common ground and have a powerful symbiotic relationship. As CGEN President Lesley Hymers, whose day job is Environment and Education Specialist with the Ontario Mining Association, says, "Anything we can do to cultivate a culture of Earth science education and outreach across the country is critically important, especially as there is often a lack of Earth science in curricula. EdGEO workshops are an important way to bridge the gap and provide opportunities to teachers to introduce Earth science to their classrooms."

To become a member of CGEN or for more information, visit [earthsciencescanada.com/cgen/](http://earthsciencescanada.com/cgen/)



## How to Become a Sponsor

The success of EdGEO is tied directly to the dollars it can raise to support workshops for teachers throughout Canada. Currently, new sponsors are needed to build EdGEO's funding base, so we can support more workshops. If your organization would be interested in becoming a sponsor of EdGEO, please contact Beth McLarty Halfkenny at (613) 520-2600, extension 8520.



## EdGEO Highlights

During the year, with the ongoing commitment of our volunteers and generous support of our donors, we continued to carry out EdGEO's mission of supporting educational opportunities in the Earth sciences for Canadian teachers. Powered by more than 40 enthusiastic local Earth scientists and educators, eight EdGEO workshops were attended by about 220 teachers in 2015-2016. The scope of workshops ranged from a one-day in-class exploration of new teaching resources to a five-day tour that introduced teachers to modern mining.

We also continued work on the French translation of our highly regarded Earth science teaching resources *Bringing Earth Science to Life* and *Putting the Earth into Science* ([www.edgeo.org](http://www.edgeo.org), click on "Resources"). The feedback from teachers who have used these classroom-ready activities has been extremely positive, and we are committed to making them available to teachers in both languages.

Our funding this year came from a Canadian Geological Foundation multi-year grant, with continued support from the Canadian Society of Exploration Geophysicists and the Canadian Geoscience Education Network. These financial contributions are crucial to our ability to deliver excellent professional development opportunities at our workshops, as and where the need arises. We thank all our volunteers and our sponsors for their commitment to excellence in Earth science education.

**“ In just a few days I went from knowing very little about Earth science to being excited about the prospect of teaching it. —Participant, Carleton University's Discovering Earth Sciences Workshop**

# Resources for the Classroom

“My favourite part of this unit was writing short stories about fossils and geologic time. I will mostly remember the real reason of how the dinosaurs went extinct.”  
—Grade 8 student, Colquitz Middle School

## Understanding Geological Time: Colquitz Middle School

Three teachers at this school in Victoria, BC, have put together a learning unit based on *Four Billion Years and Counting*. And it has brought the Earth's 4.6 billion year history into vivid focus for their grade 7 and 8 students. The developers, Michelle Dixon, Mikki Reintjes, and Kim Zumach, learned about the book through a serendipitous connection with past EdGEO Chair, Eileen Van der Flier-Keller.

The interdisciplinary unit wove language and visual arts together with science curriculum components. Using 20 undated images from the Four Billion Years website, each team of students was asked to arrange the images in what they considered the correct chronological order on their geological timeline – a 4.6 metre-long piece of wallpaper – and to write a justification for their decision.

After watching the National Geographic film *The Story of the Earth* and carrying out hands-on learning activities that illustrated scientific evidence for explaining the Earth's history, the students revisited their timelines and, based on their new understanding, repositioned the images correctly. The big surprise for the students was how little geological time humans occupy. Mikki Reintjes notes, “It was shocking to them to realize where they fit into geological time as a species.”

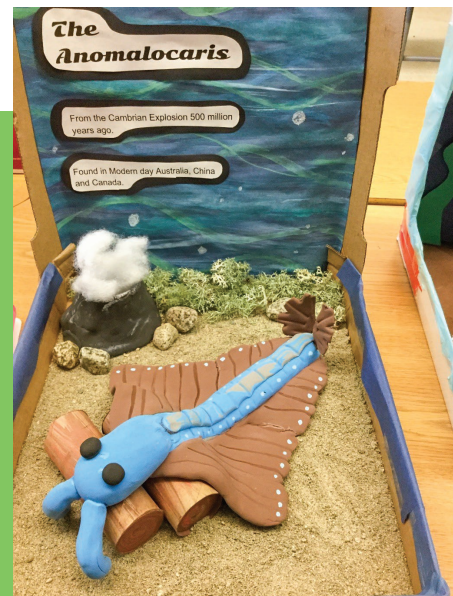
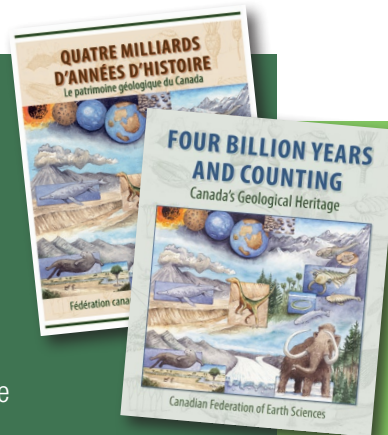
Four classes of combined grades 7 and 8, totalling about 120 students, took part in the unit, and according to Michelle Dixon, “They loved the hands-on activities.” In addition to the developers, three other teachers at Colquitz taught the unit (Caitlyn Branch, Dylan Pagnotta, and Megan Perry). Kim Zumach says, “Other teachers at the school are definitely interested in using it.” The good news is the developers are happy to share it with any teacher who needs it. Just contact Kim with enquiries at [kzumach@sd61.bc.ca](mailto:kzumach@sd61.bc.ca).

## Four Billion Years and Counting: Canada's Geological Heritage

Published in October 2014, this new book has had an excellent year. The first printings of the English and French editions have sold out, with the second print runs available soon. Plus, it won the Association of Earth Science Editors' Outstanding Publication Award for 2015.

The richly illustrated book, which represents the work of more than 100 Canadian geoscientists, is also proving to be a focal point for EdGEO workshop programming. As well, its website ([www.fbycbook.com](http://www.fbycbook.com)) is receiving kudos from teachers across the country for its downloadable resources that can be used in the classroom at no charge.

Bulk orders (five or more copies) of the book are available at 40% off the cover price of \$39.95. Contact Nimbus Publishing at 1-800-646-2879 or [customerservice@nimbus.ca](mailto:customerservice@nimbus.ca). Order the French edition *Quatre milliards d'années d'histoire* at [multim.com//titre/?ID=396](http://multim.com//titre/?ID=396)



*The four participating classrooms created a one-day museum throughout the school featuring fossils and geological events they had learned about. A sure sign of success was that over 95% of the students made a display to add to the museum – usually 15% to 20% do not complete assignments on time.*

# Our Team

## The National EdGEO Committee

Two volunteer co-chairs run the National EdGEO Committee. They administer the grants and look after everything that makes a granting organization run, including fundraising. The 2015-2016 co-chairs are:

- **Amanda McCallum**, an educational consultant based in St. John's, Newfoundland.
- **Beth McLarty Halfkenny**, Outreach Coordinator for Carleton University's Department of Earth Sciences.

Past co-chair *Laura Clinton*, an educator and fundraising consultant based in Whitby, Ontario, continues to provide advice and assistance. Members of the national committee are: *Jennifer Bates* (NS), *Toon Pronk* (NB), *Christy Vodden* (ON), *Fran Haidl* (SK), *Sheila-Dale Johnston* (BC), and *Jane Wynne* (BC)



## EdGEO a Besoin de Vous!

If you are French speaking and want to promote the quality of Earth science education in Canada, the EdGEO National Committee needs your help. We are working to expand our workshops in Quebec and in French schools across Canada. We need someone to join the committee who can liaise with our French workshop organizers and coordinate their grant applications. For more information, please contact [Beth.McLartyHalfkenny@carleton.ca](mailto:Beth.McLartyHalfkenny@carleton.ca).

“ **The mining tours continue to be amongst the very best professional development I have attended in my 14-year career. I am heading into the fall feeling re-energized with new ideas.** —Participant, Canadian Ecology Centre Teacher Mining Tour

