



Canadian Earth Science Teacher
Workshop Program

EdGEO is a national volunteer-run program that provides funding support to teacher workshops on the earth sciences with grants of up to \$3,000. Since its beginnings in the early 1970s, EdGEO has connected with thousands of Canadian teachers through these workshops.

The ripple effect of EdGEO is impressive. Over the past decade more than 3,000 teachers have participated in EdGEO workshops, returning to their classrooms with the knowledge, resources, and confidence to teach the earth sciences. Over their careers these teachers will connect with hundreds of thousands of Canadian students. And, as a result, these students leave secondary school with some knowledge of the impact of the earth sciences, a better awareness of Planet Earth, and, in some cases, an interest in becoming part of the next generation of earth scientists.



NATIONAL WORKSHOP PROGRAM NEWS

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



EdGEO Workshops 2014-2015



Halifax A one-day workshop *Interpreting Nova Scotia Beaches* showed teachers “geology in action” at local beaches, and how this information can be used with their students to teach geological processes. Through talks and hands-on activities, the workshop covered topics such as beach sand composition and its role in the rock cycle, and the various natural and human activities that influence the coastline. 🧑 15

Fredericton The University of New Brunswick's Quartermain Earth Sciences Centre hosted elementary and middle school classes and their teachers at a *Day of Geology*, as the education component of an annual professional geoscience conference. It included hands-on activities about rock and mineral identification and earth processes, with resource kits for the teachers. 🧑 10

Northern Ontario The Canadian Ecology Centre's *Teachers' Mining Tour* is a five-day program providing a glimpse into the many aspects of modern mining in Ontario. It links the Ontario curriculum to mining technology, the environment, careers, and safety, and includes visits to open pit and underground mines, rehabilitation sites, and related industries. Two tours were run in 2014 – one to Sudbury, the other to Timmins. 🧑 48

Ottawa Carleton University ran its annual *Discovering Earth Sciences Workshop* with this year's focus on sedimentary processes and the aggregate industry. It included a field trip to three local quarries. Participants were provided with hands-on methods and ideas for using the outdoor environment in teaching, as well as an extensive resource kit. 🧑 20

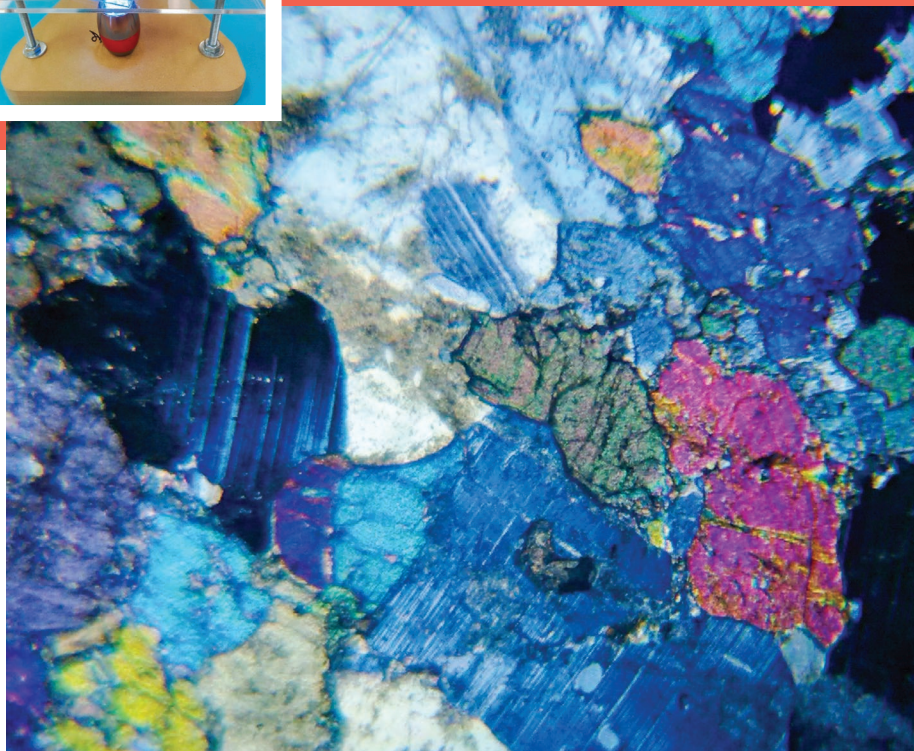
The Canada Science and Technology Museum's annual three-day *Summer Institute for Elementary Teachers* added a half-day workshop on rocks and minerals, and provided resource kits to the participating K-8 teachers who came from all over Canada. The Summer Institute shares innovative teaching strategies for integrating science, technology, engineering, and math into classroom lessons. 🧑 39

Yukon The Yukon Geological Survey ran a two-day workshop that provided an overview of the geological history of the Yukon and looked at the current status of mining and mineral exploration in the territory. A field trip toured local sites that teachers can visit with their students. 🧑 5

 Denotes Attendance

Workshop 101

Interested in putting on a workshop, but don't know where to begin? Well, check out the EdGEO manual *Bringing Earth Science to Life* at edgeo.org/ (click on Resources). In the manual's Overview, you will find a step-by-step guide to building a successful workshop, with templates for advertising, fundraising, feedback, and much more. The rest of the manual includes hundreds of classroom-ready activities for a range of earth science topics, as well as information sheets to provide background, and ideas for adapting materials to your locality. More information about organizing a workshop can be found by clicking on the Workshop tab on the EdGEO home page.





What's in a Workshop?

While each workshop is unique, they share the same basic features. For example, each one is:

- Designed to give Canadian educators the knowledge, resources, and confidence they need to deliver earth science components of the curriculum to their students.
- Locally driven and adapted to the geology and specific curriculum needs of the location.
- Led by a team of teachers and geoscientists who are passionate about the earth sciences.

The workshops are typically a mix of hands-on classroom and laboratory sessions complemented by field trips, giving the participants a wealth of ideas to take back to their schools. Most workshops also provide each participant with excellent take-away resources, ranging from lesson plans to rock and mineral specimens.

“ I enjoyed the balance of outside and indoors activities. Presentations by different professionals with their own areas of expertise were really educational. Great job! —Yukon workshop



Spotlight On Our Sponsors

The Canadian Society of Exploration Geophysicists Foundation

EdGEO relies on funding support from organizations that share our vision of increasing the awareness and expertise of Canadian teachers about the earth sciences. Since 2009, EdGEO has benefited greatly from a generous annual grant from the Canadian Society of Exploration Geophysicists (CSEG) Foundation.

The CSEG Foundation was set up in 2006 as a charitable organization. At the heart of its mission is a focus on “promoting the development of geophysical knowledge, education and public awareness.” To meet this goal it carries out a wide range of outreach activities. For example, its high-profile annual Canadian Distinguished Lecturer Tour supports a cross-country speaking engagement by a leading Canadian geophysicist.

While the CSEG Foundation's efforts are concentrated mainly on university students already enrolled in geophysics, each year its volunteers connect with hundreds of high school students at career fairs to encourage them to consider geophysics as a career option. The CSEG Foundation is also a regular participant at annual conferences for science and physics teachers at the secondary and elementary levels to build their awareness of geophysics.

And this is where the missions of the CSEG Foundation and EdGEO dovetail beautifully, says Perry Kotkas, past chair and current secretary of the CSEG Foundation's Board of Directors. “We want to encourage more geoscience in elementary and secondary schools, and our funding of EdGEO workshops moves us toward that goal. EdGEO has the people and expertise to help teachers bring the geosciences into their classrooms. It's a win-win situation.”

—More information at cseg.ca/foundation/cseg-foundation



Calling All Sponsors: EdGEO Needs You!

EdGEO's success is tied directly to the funds it can raise to support its workshops. Please consider sponsoring EdGEO if your organization would benefit from today's youth:

- Having a basic grounding in the earth sciences so as to make informed decisions about earth science-related issues
- Considering the earth sciences as career option.

EdGeo Highlights

This year has been eventful for EdGEO. We were excited to welcome Amanda McCallum to the National Committee as Co-chair, and thrilled to receive a generous multi-year grant from the Canadian Geological Foundation (CGF) that will bring a welcome stability to our funding. Feedback for our newsletter, which was published in April 2014 after a lapse of three years, was encouraging. A top priority for the near future, given increased interest from Quebec, is to find a geoscientist to help us review our grant applications for EdGEO workshops held in French and to better serve our French workshop leaders.

In the first year of our new three-year CGF grant, we are finding this sustained funding of \$20,000 per year has allowed us to focus our efforts on supporting and delivering workshops. We also are appreciative of annual grants from the Canadian Society of Exploration Geophysicists Foundation and the Canadian Geoscience Education Network. This funding allows us to continue to translate our online teaching resources *Bringing Earth Science to Life* and *Putting the Earth into Science* into French, support our website, and produce our annual newsletter.

During the past year (April 1, 2014 to March 31, 2015), EdGEO funded seven workshops that were attended by 137 teachers. The workshops are fuelled by the enthusiasm, hard work and dedication of the volunteers who step forward to organize, promote and lead them. We thank each of you for the effort and time you commit to spreading awareness about the earth sciences to our teachers. EdGEO works because of you!

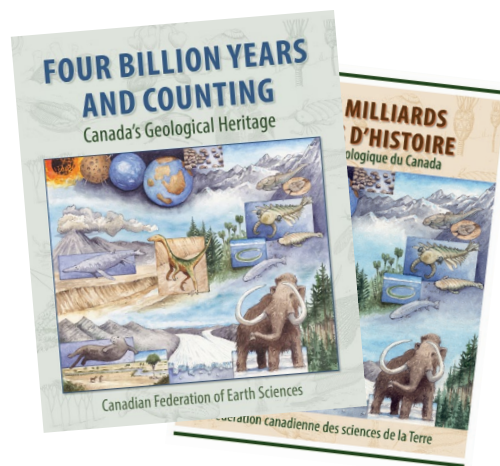


I will encourage my students to explore and open their minds to the mining industry where there are so many career opportunities for them. —Teachers' mining tour, Timmins, Ontario

Four Billion Years and Counting

Mountains as high as the Himalayas in Ontario and Quebec, elephants in the Prairies, camels in the Arctic, volcanoes in British Columbia... these are all part of the dramatic story of Canada's geological journey over the past four billion years.

A new book about this epic journey is now in bookstores. The richly illustrated ***Four Billion Years and Counting: Canada's Geological Heritage*** tells the story of Canada's geology for the general reader. It recounts how Canada's rocks, fossils and landscapes evolved to their present-day forms, and covers basic geological concepts from geological time to plate tectonics. It also describes Canada's geology through the lens of the economy (mineral, oil, gas resources), and discusses the geological component of such pressing social concerns as climate change, water resources, and natural hazards.



Graham Williams, a member of the book's editorial board and a research scientist at the Geological Survey of Canada (Atlantic) says, "We always intended *Four Billion Years and Counting* to be a resource for teachers, as well as a popular presentation of Canada's geology." And they succeeded. Many of its features make it a particularly excellent teaching aid:

- The book's content represents the work of more than 100 of Canada's leading geoscientists, and teachers from all over Canada reviewed the text.
- Most of the book's more than 700 colour illustrations are downloadable and free for use in the classroom in both English and French at fbycbook.com.
- Technical concepts or terms are defined as they are introduced in the text and are easy to find in the index (page numbers for definitions are boldface).

Plus, for a 400-page, full colour, softcover book, it is very reasonably priced at \$39.95, with bulk orders (five or more copies) available at 40% off that price. Orders can be placed at 1-800-646-2879 or customerservice@nimbus.ca. It is also available in French as a hardcover at \$49.95. The same discount applies for it. To order *Quatre milliards d'années d'histoire: Le patrimoine géologique du Canada*, call 1-800-840-3029 or email multimondes@multim.com.

Local Geology at your Fingertips

More good news about earth science educational resources! Geoscape posters and their background resource materials have been restored to web accessibility. The Geoscape project explains geology and its impact at the local and regional scale. There are Geoscape posters for 15 communities and regions across Canada, plus one that provides an overview of Canada.

The Geoscape materials have long been a mainstay of EdGEO workshops, and rightly so. They describe a geological landscape, or geoscape, and place it in the context of how it shapes the water resources, natural hazards, earth resources, and environmental issues of that locality. They were developed by teams that included local geoscientists and educators to ensure both scientific accuracy and relevance to curriculum.

As Canadian Geoscience Education Network (CGEN) President, Eileen Van der Flier-Keller explains, "Teachers find them to be an incredibly powerful source of earth science information. Because Geoscape posters provide local information, they have a huge impact on the students, who can visit sites in their community and see how geology has shaped where they live."

Originally these excellent educational resources were hosted on the Geological Survey of Canada web site, but were taken down permanently last year as part of a web site redesign. CGEN, with funding from the Canadian Geological Foundation, undertook the Geoscape Reconstruction Project, and most of the posters and resources are now online and downloadable at no charge from the CGEN archive: cgenarchive.org/geoscape.

In addition to the Geoscape posters, the CGEN archive also hosts ten Geotours (guided community field trips), three GeoMaps (highway maps describing adjacent geology), and four Waterscapes (linking water resources to local geology).



Our Team

The National EdGEO Committee

The National EdGEO Committee is run by two volunteer co-chairs. They administer the grants and look after the myriad details that go into making a granting organization run, including all the fundraising. The 2014-2015 co-chairs are:

- **Amanda McCallum**, an educational consultant based in St. John's, Newfoundland and Labrador.
- **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. Other members of the national EdGEO committee are: Jennifer Bates (NS), Toon Pronk (NB), Christy Vodden (ON), Fran Haidl (SK), Sheila-Dale Johnston (BC), and Jane Wynne (BC).

“The large amount of resources provided and the knowledge imparted during the workshops will definitely be passed on to my students, science staff, and the geography department.
—Teachers' mining tour, Sudbury, Ontario

Teaching resources worth a look!

Miriam Vos-Guenter, a teacher at Belmont Secondary in Victoria and web master for EarthLinks (a one-stop web site for earth science teaching resources), shared the ones she goes to most often.

Explore a Career in Earth Sciences (earthsciencescanada.com/careers/), which she uses in all of her earth science and geology classes.

On the EarthLinks web site (earthsciencescanada.com/earthlinks/), she uses CGEN's Favorites and Teachers Corner daily because they have all the links she needs.

75,000

100% Volunteer Powered

EdGEO runs solely on volunteer power, with no salaries paid. Each year its national committee coordinators and workshop leaders contribute more than 250 hours of their time. The result: each year at EdGEO workshops more than 300 teachers, on average, learn how to present the earth sciences to their students. This translates, over the past decade, to more than 3,000 teacher participants. And based on an annual average class size of 25, each year these EdGEO workshop “graduates” reach 75,000 students.

