



# groundWORK

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Please share this newsletter with other teachers and librarians.

Thank You!

## New and Improved

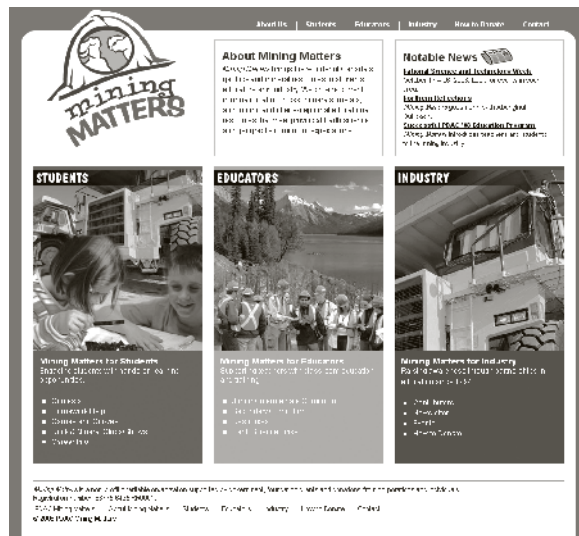
Curricula change, technologies change, students change—it's hard for teachers to keep up! *Mining Matters* is here to help; our resources change too, to help you keep pace. From updating curriculum kits and our Web site, to extending our program north and into other provinces, *Mining Matters* staff has been hard at work providing teachers and students with a wealth of relevant, accurate, and authentic Earth science resources. So, take a look at what we've been doing. We hope you like what you see.

Have a great year!

Sincerely,  
The *Mining Matters* Team

## New Web Site, New Look

We're very excited to announce the launch of our fresh, new Web site. Considering the need to support you, our teacher audience, as well as student and industry audiences, we have built lots of new features into [www.pdac.ca/miningmatters](http://www.pdac.ca/miningmatters)



Our comprehensive new site makes it easy for you to access a tremendous array of resources, from lesson plan, activity, and field trip ideas to recommended publications, audiovisual resources, and downloadable posters. Students will appreciate our in-depth homework help, have fun learning through games and quizzes, or get inspired as they investigate career options. You'll see what partnerships we've formed to expand our program and how industry members support *Mining Matters* by contributing funds and valuable resources.

Whether you're interested in finding out more about who we are and what we do or you're looking for geoscience-related information, be sure to visit *Mining Matters* on-line. And please feel free to give us feedback—we welcome your comments.

## PDAC '08 Education Program

The 2008 annual Prospectors and Developers Association of Canada International Convention, Trade Show, and Investors Exchange saw some new faces this year, beaming above bright red *Mining Matters* T-shirts. They were the participants in *Mining Matters*' first convention-based education program.

*Mining Matters* devised a complete learning experience for teachers and students based on delivery models used at other international technical conventions and incorporating the established *Mining Matters* in-service workshops. Each of three days took a different focus: on Sunday we hosted teachers from across Ontario; Monday was dedicated to elementary school students; and on Tuesday we were visited by secondary school students. The pilot student days were offered to four invited schools whose teachers had previously participated in some aspect of the *Mining Matters* program.

The education program, themed "Discover the Mineral Exploration Industry," included hands-on activities, guest speakers, and a visit to the trade show floor. All three guest groups rated the experience of seeing the exhibits as outstanding, many saying they would never have imagined the technology used in the industry, the international involvement, or the variety of exhibitors present. The only complaint was that they would have liked more time to browse around!

### Sunday: Teachers' Session

Even though it was a weekend, 39 teachers took advantage of our program. Their session opened with Pamela Strand, President of Shear Minerals Ltd., relating her experiences in the mineral industry. Next, teachers browsed the trade show floor and discovered the diverse nature of the mineral business and exploration industry.



Participants then chose one of three workshops which featured *Mining Matters* educational resources. Every participant received a complete resource kit to keep: *Deeper and Deeper* for junior teachers, *Mining Matters II* for intermediate teachers or *Discovering Diamonds* for senior teachers. Each resource contains curriculum-linked, classroom-ready student activities, plus supporting material.

Our generous sponsors provided door and session prizes for teachers: books, videos, mineral and fossil samples, posters—all received enthusiastically by our guests. After the program, many teachers stayed to continue talking with *Mining Matters* presenters or take in more of the exhibits.

### Monday: Elementary Students

On Monday, 55 students came from Oakwood Public School, Oakville, and Sawmill Valley Public School, Mississauga. Their day started with four hands-on activities with guest presenters. Mia Boiridy of Dynamic Earth introduced students to the gear and tools used in mineral exploration. Peter Russell of the University of Waterloo helped them produce an identification page of rock-forming minerals, complete with real minerals. With Stella Heenan of *Mining Matters*, students counted kimberlite indicator minerals to locate a kimberlite pipe. Finally, Ken Steele of Northern Development and Mines played "Stump the Geologist," challenged by students to answer questions and identify rocks.

During lunch, students watched the Ontario Mining Association *NickelQuest* video, and did some chocolate chip cookie mining for dessert. Then they went to the trade show floor for a scavenger hunt and a group photo with Michael Gravelle, Minister of Northern Development and Mines, who presented everyone with a toque. The students ended the day singing along with Chris Rawlings to his "Rocks and Water" songs about Earth science.

Our guests went home with *Mining Matters* gift bags containing hand lenses, crystal nets, mineral and core samples, mineral identification sheets, colouring books, and rock cycle posters.

### Tuesday: Secondary Students

For our secondary school day, 36 students joined us from the Specialist High Skills Major in Mining program offered by the Rainbow District School Board in Sudbury. Introduced in 2007, the program allows students to complete their studies while engaging in hands-on learning in the mining industry. They can also earn valuable industry certifications, including first aid and confined space awareness training.

Students first tackled a simulated field exploration, led by Beth Halfkenny from Carleton University. Using field mapping techniques, they interpreted the "outcrops" laid out in the session room to identify the underlying geologic structure and locate likely places for economic mineral targets around the Sudbury crater.

We then invited students to listen to our Careers Panel speakers. Representing a broad spectrum of opportunities and personal career paths, these individuals shared their passion and enthusiasm for all things Earth science.

After lunch came a visit to the trade show floor and, to finish the day, Dr. Harvey Thorleifson treated students to his presentation “The Hunt for Diamonds in the Land of Ice and Snow.”

Plans are in the works for the *Mining Matters* 2009 Convention education program. Please watch our Web site for details and contact us if you're interested in attending!

## 2010 Connection: Metal Count

Canada's Teck Cominco Ltd. will be near the heart of every athlete who earns a spot on the podium in the 2010 Olympic Winter Games. This Vancouver-based firm will supply the metals used to make the Olympic and Paralympic medals, working with the Vancouver Organizing Committee (VANOC) and the Royal Canadian Mint in the development and production of the 2010 medals.

“Athletes around the world are training to earn the right to stand on the podium in 2010 and Teck Cominco will play a key role in ensuring their medals—the ultimate symbol of athletic excellence—are shining examples of Canada's mining industry,” says Vancouver 2010 CEO John Furlong.

### Gold

Gold (Au) has held allure for explorers for more than 5000 years. It was the first metal widely known to humans and was coveted by those in power. In 3000 B.C., Egyptians created gold leaf: gold beaten into very thin sheets, like foil. The Greeks mined for gold, and the Romans advanced the process by mining underground. Around 700 B.C., gold was first used as currency; punched into coins, it was portable and permanent. It still forms the basis for a monetary standard used by the International Monetary Fund (IMF). Today, Canada is one of the world's largest producers of official gold coins.

Gold has a wide array of uses. You'll find it in dental fillings, electronics, medical devices, as well as spacecraft and satellites. Gold-coated lasers, thermometers, and gold compounds are used in life-saving pharmaceuticals and medicine. Gold reflective glass on buildings keeps them warm in the winter and cool in the summer.



The weight of gold is expressed in troy ounces. One troy ounce equals 1.097 regular ounces. The purity of gold is either described as a percentage (parts of gold per 100) or in karats (parts of gold per 24).

Most of Canada's gold is found on the Canadian Shield and the Cordillera in B.C. In 2002, 147 tonnes of gold were mined in Canada, generating \$2.3 billion. For more information about gold, go to [www.gold.org](http://www.gold.org)

### Silver

Silver (Ag) occurs in the Earth as a pure free metal and has been in use since ancient times. Soft, white, and lustrous, it has numerous unique properties, including strength, malleability, and ductility, as well as high thermal and electrical conductivity. Silver can also withstand extreme temperature ranges as well as act as a disinfectant.

The three main uses of silver include industrial applications, jewellery markets and photographic applications. According to the 2007 figures of The Silver Institute, industrial applications consume the most silver, using about 455.5 million ounces. Jewellery markets use 163.4 million ounces and photographic applications use 128 million ounces.

In Canada, silver is mined as a by-product of base metal or gold mining in Newfoundland and Labrador, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, B.C., the Yukon, and the Northwest Territories. To learn more about silver, go to [www.silverinstitute.org](http://www.silverinstitute.org)

### Bronze

Bronze is a copper alloy, usually copper mixed with tin, but other elements or metals can produce bronzes with different properties. The use of bronze significantly affected the development of human culture. We call the period from 3500 B.C. to 1200 B.C. the Bronze Age, since the discovery of the alloy improved the making of tools, weapons, armour, and building materials.

Bronze still has many applications, including the manufacture of bells and musical instruments. Bronze parts are also used for bearing clips, electrical connectors, springs, and roofing materials.

### Copper

The metallic element copper (Cu), has a distinctive pinkish lustre. As one of the first minerals humans extracted from the Earth, it played an important role in early civilization, giving rise to the Bronze Age.



Copper is a ductile metal with excellent electrical conductivity, making it suitable for its main industrial use: cable, wire, and electrical products for the electrical industry. The second largest use is in construction, for such things as plumbing, heating and ventilation pipes, as well as building wire and sheet metal facing. Over 65 per cent of copper is used in buildings and for transmitting electricity.

## Medal Facts

Olympic medals are designed especially for each individual Olympic Games by the host city's organizing committee. Each medal must be at least 5 mm thick and 70 mm in diameter. The gold and silver medals must be made from 92.5 per cent silver, with the gold medal covered in 6 gm of gold. The last medals that were made entirely out of gold were awarded in 1912.

Copper is also an important component in technology. It can be found in integrated circuits, computer chips, computer circuit boards, and many other electrical devices.

Canada is an important producer of copper. Four provinces account for the majority of production: B.C., Ontario, Quebec, and Manitoba. To learn more about copper, go to [www.copperinfo.com](http://www.copperinfo.com)

## Tin

Tin (Sn), named for the Etruscan god Tinia, was one of the earliest metals known. The silvery-white metal was recognized for its hardening effect on copper, and used to make bronze implements as early as 3500 B.C. The pure metal was not used until about 600 B.C.

Tin is a relatively scarce element, occurring in the Earth's crust at about 2 parts per million (ppm), compared with 94 ppm for zinc, 63 ppm for copper, and 12 ppm for lead. While about 35 countries around the world mine tin, over half of its production occurs in Southeast Asia. In Canada, tin is mined in Nova Scotia and New Brunswick.

Most tin is used as a protective coating or as an alloy with other metals such as lead or zinc. Tin is used in coatings for steel containers, in solders for joining pipes or electrical/electronic circuits, in bearing alloys, in glass-making, and in a wide range of chemical applications. Secondary, or scrap, tin is an important source of the tin supply. To learn more about tin, go to [www.infomine.com/commodities/tin.asp](http://www.infomine.com/commodities/tin.asp)

Canadians might think that production of our one cent coin requires a great deal of copper. In fact, from 1858 to 1996, Canadian pennies were composed of 94 to 98 per cent copper. However, since 1996, copper has merely coated the steel disc at the heart of our penny.

## Tweed Indeed

Consider an educational field trip to the town of Tweed, located about halfway between Ottawa and Toronto in an area that offers amazing geological structures and a variety of interesting rocks. The different rock types reveal a story that spans billions of years of the Earth's history.

In and around the Tweed area are ancient, Precambrian (4500 – 542 million years ago) volcanic and sedimentary rocks which have been transformed through metamorphic processes. About 1.1 billion years ago, plate tectonics led to a continental collision in the area, which, through the folding of formerly flat-lying volcanic and sedimentary rock layers, created mountains as high as the Himalayas. Over the next 500 million years, the mountains were eroded, exposing rocks formerly hidden deep within them. These rocks had changed over time with high temperatures and pressures at depth causing re-crystallization, partial melting, and segregation of minerals.



Marble quarry near Tweed. Image courtesy of Ontario Geological Survey

There are some interesting geological structures visible in the Tweed area, including pegmatite dikes. These cross-cutting intrusive bodies, emplaced after a rock has solidified, are veins filled with a variety of large mineral crystals. Of special interest is an unconformity, located northeast of the town. An unconformity is a surface between successive rocks layers that represents a missing interval in the geologic record. In this case, the contact is between Precambrian granite and Ordovician limestone (490 – 443 million years ago).

A tour of the town will introduce visitors to some beautiful rocks, including marble and granite. Marble, used extensively for sculpture, as building material, and in other applications, is a metamorphic rock created by the re-crystallization of carbonate rocks like limestone. Granite, used as a building material and for countertops, is an igneous rock with large crystals formed by slow cooling under the surface of the Earth. In the Tweed area, granite occurs in a variety of colours.

The Tweed area has also been an important mining location. Minerals such as limestone, rose quartz, beryl, feldspar, lyndochite, amazonite, cleavelandite, and nepheline syenite have all been mined in the area.

## Grant for groundWORK



We'd like to thank the Canadian Geological Foundation (CGF) for a \$5,000 grant from the Foundation's Thayer Lindsley Endowment Trust Fund. The money was given to support *Mining Matters'* elementary and secondary school educator *groundWORK* newsletters.

"The Grants Selection Committee is pleased to be able to contribute to this worthy project," said Dr. Johnston, CGF Secretary and Professor at the School of Earth and Ocean Sciences, University of Victoria. The CGF is dedicated to furthering geoscience in Canada and plays a key role in sustaining geoscience education, outreach, and awareness across the country.

The *groundWORK* newsletter distribution to nearly 10,000 educators often includes classroom resources such as posters and DVDs, provided in partnership with the Geological Survey of Canada, the Canadian Department of Indian and Northern Affairs, and the Ontario Mining Association.

## Northern Reflections

November 2007 marked the beginning of our focused effort to deliver workshops to First Nations communities, as part of *Mining Matters'* Aboriginal Outreach program. Over the course of the school year, Education Consultant Barbara Green Parker visited 11 communities, delivering *Mining Matters* workshops and sharing her enthusiasm for geoscience.

The program kicked off with a successful visit by Barbara and *Mining Matters* Director Laura Clinton to the Sachigo Lake First Nation in answer to their invitation to present our workshops. Barbara then handled the second excursion to the communities of Long Lake #58, Ginoogaming, Aroland, and Rocky Bay in December 2007. Despite severe winter weather throughout the region and scheduling issues, the trip proved to be another success.

The final trip of the school year was a two-week, six-community journey that took Barbara to Wabaseemoong, Grassy Narrows, and Shoal Lake #40 First Nations in the Kenora Region, and then to Eabametoong, Webequie, and Neskantaga First Nations fly-in communities north of Thunder Bay.

Barbara enjoyed the success of the year's outreach program, as well as the tremendous warmth and hospitality of the people who hosted her along the way. Despite the brief time spent in each locale, she felt privileged to learn about the individual character of each community. Since her return, Barbara has kept in touch with the various schools she visited, ensuring they have no further requirements.

Barbara says, "Thank you to all that so generously offered their warm hospitality, assistance, and kindness. It was truly a memorable first year! Meegwetech!"

For Barbara's engaging personal account of her trip, visit [www.pdac.ca/miningmatters](http://www.pdac.ca/miningmatters)

## Working for Aboriginal Youth

This summer, *Mining Matters* participated in the First Nations Natural Resources Youth Employment Program (FNNRYEP), held in partnership with Outland Forestry and Confederation College. FNNRYEP is a seven-week, live-in professional and personal development program designed to facilitate future employment in the natural resource sector. This year's program, held in Upsala, Ontario, attracted 26 young people aged 15 to 19 from 15 Northern Ontario First Nation communities.

*Mining Matters* presented a five-day thematic educational program focused on mining geoscience, environmental science, and careers education, and also arranged a visit to North American Palladium's Lac Des Iles Mine operation. The *Mining Matters* program was facilitated by mentors from the organization, and from the Exploration and Mining industry and related careers, including Line Cutting, Prospecting, Environmental Sampling, and Mine Operations.

*Mining Matters* was honoured to be part of such a worthwhile program and looks forward to participating again in the future.

## Speakers Bureau



Over the next ten years, Canada's mining industry will require up to 92,000 new workers. The Mining Industry Human Resources Council wants to help you inform students about the countless opportunities available to them in the sector. The Council has recently updated their Web site, packing it full of interesting information and resources for students. And teachers can take advantage of the new Speakers Bureau, a database of speakers who offer a range of experiences in the mining industry and a passion for the sector's vitality.

Using a searchable and automated requesting system, anyone looking for a speaker can search by region, by speaker's target group of interest, or by name. If you'd like to find someone who can speak to your class, go to [www.acareerinmining.ca/careers.html](http://www.acareerinmining.ca/careers.html)

## GeoCaching & EarthCaching

Are you familiar with GeoCaching, the popular activity that uses latitude and longitude coordinates along with a Global Positioning System (GPS) to find hidden trinket-filled containers? It had its beginnings in May 2000, soon after the U.S. government discontinued Selective Availability, which had previously limited the accuracy of civilian-owned GPS to about 100 metres. The newly unscrambled signals meant civilians could expect accuracy on the order of 10 metres.

For details about GeoCaching, go to [www.geocaching.com](http://www.geocaching.com)

In 2004, EarthCaching grew out of Geocaching as an innovative and educational tool that employs the same tools. However, rather than seeking physical caches, EarthCache enthusiasts look for locations that reveal the treasures of the Earth. The most exciting way to learn about the Earth and its processes is to gain first-hand experience. Visiting an EarthCache site is a great outdoor activity for all ages—who doesn't enjoy a treasure hunt?



What do you need to be an EarthCacher? First of all, you'll need a Global Positioning System (GPS). GPS units come in various shapes and sizes. The most commonly used by most EarthCachers are small handheld units that can cost about \$100 for basic models, and between \$200 and \$300 for mid-range models. You can find them on-line or look for them in sports, camping, electronics, and department stores. If you're going to use it strictly for teaching, try to borrow one!

Next, go to [www.earthcache.org](http://www.earthcache.org) and look at the EarthCache listings—the Geological Society of America (GSA) administers the listing of sites around the world. There are 3,965 choices, in both urban and rural settings.



Decide where you'd like to hunt for an EarthCache; an Advanced Search can show you ones in a specific area or ones that fall under a certain classification. For example, in Ontario there are 70 sites listed; 22 of them are considered Glacial Features, 5 are Sedimentary Features and so on. To investigate a particular EarthCache, click on its name and you will be taken to its Web page. There you'll find educational notes and sometimes photos, as well as questions you'll be able to answer once you're on location. To get the coordinates, you have to create an account with [www.geocaching.com](http://www.geocaching.com). No worries—it's free.



If you catch the EarthCaching bug, you'll want to log your various adventures, or perhaps you might set up a site of your own for others to discover. You might want to join with fellow Ontario enthusiasts and check out local EarthCaching or GeoCaching clubs. Does anyone recognize this Ontario EarthCache site? (See p.8 for the answer.)

Now, how to relate all this teaching? On the EarthCache Web site, you'll find a page for teachers offering a free teachers'

guide to introducing EarthCaching to your students. You'll learn how to create your own EarthCaches, direct students to create EarthCaches, or use existing EarthCaches in your classroom. Download the whole 57-page document or select sections.

Many GeoCachers are EarthCachers as well; you'll find links to local associations on many of the EarthCache Web pages, one being the Ontario GeoCaching Association at [www.ontgeocaching.com](http://www.ontgeocaching.com). To take this one step further, you could look at EarthTrek, an international citizen science program. This program invites all people to participate in real scientific research. Rather than visiting a site to learn about the phenomenon, visitors actively collect data to submit to a growing body of knowledge. People can participate as individuals or teams and work within whichever community they are comfortable. This program is in its early stages. To learn more about it, contact Gary Lewis, Director Education and Outreach, Geological Society of America at [glewis@geosociety.org](mailto:glewis@geosociety.org) or Daniel Beaupré, Director, Educational Partnerships, Lectures and Public Programs, National Geographic at [dbeaupre@ngs.org](mailto:dbeaupre@ngs.org)

## Joggins Fossil Cliffs

In July 2008, Joggins Fossil Cliffs in Nova Scotia were added to the exclusive ranks of UNESCO World Heritage Sites. Situated at the head of the Bay of Fundy, the 15-kilometre stretch of cliffs has been called a "Coal Age Galapagos." It features dramatically exposed layers of rock that reveal fossils considered the best evidence known of the iconic features of the Pennsylvanian (or Carboniferous) period of Earth history approximately 300 million years ago.

The Joggins Fossil Centre is situated on the reclaimed site of an old coal mine overlooking the Joggins Fossil Cliffs. The Centre offers exceptional

learning experiences, featuring an extensive fossil specimen collection, exhibits, and displays depicting the area's rich geological history, its history of scientific discovery, and the contribution of local coal mining.

To learn more about the Joggins Fossil Cliffs, explore the Centre, and see dramatic photos of the cliffs and its fossils, go to <http://jogginsfossilcliffs.net>



Image courtesy of Joggins Fossil Centre

Canada is home to several other outstanding natural UNESCO World Heritage Sites:

- Canadian Rocky Mountain Parks
- Dinosaur Provincial Park
- Gros Morne National Park
- Kluane/Wrangell-St. Elias/Glacier Bay/Tatshenshini-Alsek Parks
- Miguasha National Park
- Nahanni National Park
- Waterton Glacier International Peace Park
- Wood Buffalo National Park

To explore them all and find links to information about their unique natural features, go to <http://whc.unesco.org/en/statesparties/ca>

## Google Earth Tools

Have you ever had fun exploring with Google Earth, zooming in on your street or scoping out places to visit? Have you ever used the program as a teaching tool? If not, maybe it's time.

Google Earth is an excellent tool to complement studies in many areas of the Ontario Curriculum. Have your students "fly" around the world and zero in on locations related to your course content. Check out major landforms, plot travel paths, focus on historical landmarks, compare river systems, or explore areas of volcanic activity. Examine highlights like the UNESCO sites discussed in the preceding article or even get a bird's-eye view of an area you're planning to visit on a field trip.

Though you can pay for a version with more bells and whistles, the basic Google Earth program is free to download. For maximum use, take advantage of the comprehensive user guide and try out the tips that pop up. For specific lesson ideas or general information geared to educators, go to [www.google.com/educators/p\\_earth.html](http://www.google.com/educators/p_earth.html)



For the latest news or ideas about how to use Google Earth (e.g., track a hurricane or check the state of Arctic ice), go to [www.earthblog.com](http://www.earthblog.com)

## Go TSTOP

The Teachers' Science and Technology Outreach Program (TSTOP) provides Ontario elementary and secondary science and technology teachers with opportunities to participate in leading-edge research in publicly funded institutions. The objective of TSTOP is to advance teachers' scientific knowledge and understanding of research underway in Ontario, share the excitement of research with their students, and develop an ongoing relationship between the classroom and researchers. For further details go to [www.mri.gov.on.ca/English/programs/tstop/program.asp](http://www.mri.gov.on.ca/English/programs/tstop/program.asp)

## Teacher GAC Membership

The Geological Association of Canada (GAC) now offers memberships to teachers K–12. The aim is to foster stronger relationships between Earth scientists and the teachers of Canada's youth. For an annual fee of only \$10, you get on-line access to *Geoscience Canada* (one of GAC's journals) and *GEOLOG* (the newsletter). For \$35, you receive paper and on-line access to both. Other benefits include discounts on GAC publications and reduced registration fees for the annual GAC-MAC Conference. In 2009, the conference will be held in Toronto, May 24–27. There will be events and field trips for teachers, and opportunities to connect with Earth scientists.

Sign up for your 2009 membership using the Student/Teacher category at <http://www.gac.ca/aboutgac/join.php>

## Diamonds Everywhere

*Discovering Diamonds* has taken flight. *Mining Matters* has given workshops for secondary level teachers in B.C., Alberta, Saskatchewan, Manitoba, and Ontario, showing them how to incorporate the material in this valuable resource into their curriculum; Quebec and Newfoundland and Labrador educators have also expressed interest. We still have space in our 2009 workshop schedule, so we encourage you to look over our *Discovering Diamonds* sample on-line and contact us to learn more about this opportunity.

Diamonds have long captured the world's imagination. To see a spectacular array of these precious jewels, go to the Royal Ontario Museum's special exhibit, *The Nature of Diamonds*. This show has dazzled audiences from New York to Tokyo and will be in Toronto until March 22, 2009. For further information go to <http://www.rom.on.ca/exhibitions/special/diamonds.php>

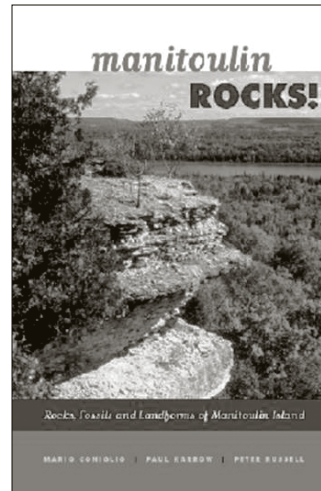
## Field Trip Subsidy Program

*Mining Matters* continues to offer the Field Trip Subsidy Program as part of our commitment to enriching school-based geoscience learning. If you have completed an in-service workshop and use a *Mining Matters* resource kit in your classroom, you may apply for the \$10-per-student subsidy for a geology or mining-related field trip. We allot \$5,000 for the program and consider applications on a first-come, first-serve basis.

You'll find field trip ideas and an application form on our Web site. We ask you and your students to submit a summary of your experiences after your adventure. For further information, please call us at 416-863-6463, ext. 321, or e-mail [pdacmm@pdac.ca](mailto:pdacmm@pdac.ca)

## Exploring Manitoulin Island

Source: University of Waterloo (UW) Earth Sciences Museum Web site



For well over a century, the Manitoulin Island area has been a mecca for Earth scientists from all over North America who've come to study its rocks and collect its fossils. A book by two University of Waterloo (UW) Earth scientists and a curator colleague explains why.

*Manitoulin Rocks! Rocks, Fossils and Landforms of Manitoulin Island*, a guide to the geology of the island and nearby areas to the north, was written for the non-specialist to share in the excitement about the area. The

profusely illustrated 130-page book is an ideal resource for tourists, teachers, students, nature lovers, or anyone else who wants to understand the natural history of the beautiful island.

The book's publishers are the Earth Sciences Museum at UW, in partnership with the Geological Association of Canada (GAC) and the Gore Bay Museum in the town of Gore Bay on Manitoulin Island. It was written by Mario Coniglio and Paul Karrow, both UW professors of Earth sciences, and Peter Russell, curator of UW's Earth Sciences Museum. To learn more about the book or where to purchase it, go to [www.earth.uwaterloo.ca/services/museum/manitoulin](http://www.earth.uwaterloo.ca/services/museum/manitoulin)

## Call for Entries

### WHERE Challenge



In celebration of the International Year of Planet Earth, the first annual **WHERE Challenge** is asking Canadian kids aged 10 – 14 years to answer these questions: What on Earth is in your stuff and **WHERE** on Earth does it come from? Entrants across the country could win national and regional cash prizes, and all entries go into a draw for an iPod touch.

Individuals or groups can answer the questions by writing an essay, a poem, a song, or a play, or creating a painting, a poster, an audio, video, or multimedia presentation, or anything else they can dream up—the more original, the better! Winning entries will be used to demonstrate how Earth resources are essential to our everyday lives. For more details or to learn more about exciting careers in Earth sciences, please visit [www.earthsciencescanada.com](http://www.earthsciencescanada.com)

## Video Competition

*So You Think You Know Mining* is a video competition launched by the Ontario Mining Association (OMA). High school students in Ontario, either as individuals or in teams, are offered an opportunity to produce two- to three-minute videos showcasing the benefits of mining. Students are encouraged to explore a range of benefits of mining including economic growth, employment opportunities, and end uses of mining products, along with technological and environmental innovations.

Five winning entries will be selected by a panel of judges based on originality, audiovisual quality, and effectiveness. The prize categories are for Best Overall Entry, Best Directing, Best Writing (original screenplay), Best Music (original score) and Best Comedy. Winners will receive cash prizes and their productions will be featured at the Canadian Institute of Mining, Metallurgy, and Petroleum's conference in Toronto in May 2009 and on the OMA Web site. Entries will close March 31, 2009. Look for more information on the OMA Web site. [www.oma.on.ca](http://www.oma.on.ca)



## You Could Win!

Complete the enclosed Readership Survey and win! You'll receive a thank-you gift just for faxing the completed survey to us at 416-863-9900. Plus, we'll enter you in a draw for a classroom set of rocks and minerals. Please see the survey for details.

## Mining Matters Resources

Our Web site now has a section for secondary school educators. Take an in-depth look at our senior secondary curriculum kit, *Discovering Diamonds*, learn about booking a workshop, investigate post-secondary and career options with your students, and use our resources and Earth science links. And please let your students know about our great Student section, too. It's all there at [www.pdac.ca/miningmatters](http://www.pdac.ca/miningmatters)

## Web Sites for You

Here are two Web sites that offer geology-related photographs, copyright-free if used for non-profit educational purposes.  
[www.earthscienceworld.org/imagebank](http://www.earthscienceworld.org/imagebank)  
<http://skywalker.cochise.edu/wellerr/aawellerweb.htm>

The Smithsonian Institute offers a Geo Gallery, Mineral Science Collections, and special on-line exhibitions such as Dynamic Earth, where you can explore Rocks and Mining, Gems and Minerals, Plate Tectonics and Volcanoes, and The Solar System.  
[www.mnh.si.edu/explore/earth/index.html](http://www.mnh.si.edu/explore/earth/index.html)

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*Mining Matters* creates exceptional educational resources to meet provincial Earth science curriculum expectations. Since 1994, this non-profit charitable organization has reached more than 400,000 teachers and students through resources that promote awareness of the importance of rocks, minerals, metals, mining, and Canada's geology. *Mining Matters* prides itself on building long-term partnerships with teachers by providing relevant, accurate, and authentic Earth science resources for the classroom, designed by teachers for teachers.

Meet the people at *Mining Matters*. Please visit our Web site to put some faces to the names you see here and to learn a little about us.

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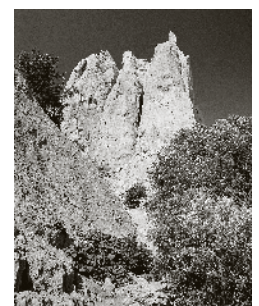


Image courtesy of Hans Boldt

Answer to EarthCache  
site question on p.6:  
Scarborough Bluffs