



groundWORK

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The Big Picture

The staff at *Mining Matters* has been busy over the last year. While maintaining existing partnerships and programming, we've cultivated new partnerships, further expanded our programming, and offered our resources across Canada.

In **Ontario**, we updated our junior resources and delivered several teacher workshops, including those presented at the *Prospectors and Developers Association of Canada 2009 International Convention and Trade Show*. We worked with Science North in Sudbury, developing resources to accompany its Dynamic Earth exhibit, *Diamonds*. And we partnered with ESRI, a geographic information system software company, to develop digital activities for our senior high school resource, *Discovering Diamonds*.

In northern Ontario, for the second year, we incorporated our Aboriginal Youth Outreach Program into the 2009 First Nations Natural Resources Youth Employment Program (FNNRYEP), facilitating employment prospects for Aboriginal youth.

In **Manitoba**, we presented teacher workshops for our three Manitoba curriculum-aligned resources, and we took our Aboriginal Youth Outreach Program to the inaugural five-week Manitoba Rangers Program.

In **British Columbia**, we partnered with the Mineral Resources Education Program of British Columbia and trained teachers to deliver our senior curriculum resource, *Discovering Diamonds*.

We're now introducing our education programs and resources to **Newfoundland and Labrador**. In November, we're delivering educator workshops and participating in the *Mining in Society Show* planned in conjunction with Newfoundland and Labrador Provincial Mining Week.

Future work at *Mining Matters* involves translating resources into French, expanding programming to **Québec**, increasing workshop delivery and student reach, producing new resources, and cultivating further education, industry, and government partnerships.

Please share this newsletter with other teachers and librarians.

Thank You!

Setting Records

Mining Matters has set a new record. During the 2009 *Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Mining in Society Show*, May 10–12, we educated over 7,000 students, teachers, and members of the public about the importance of mineral resources. The *Mining in Society Show* is an educational and interactive show with a mandate to help the general public and students appreciate and understand the mineral exploration and mining industries, their benefits to society, and the career opportunities they offer.

We delivered hands-on learning activities that complemented the show's pavilion themes, which included exploration, mining, processing, sustainability, products and fabrication, education, and new frontiers. Our activities included the following:

- **Mystery Mineral**
Try to identify a mineral sample by using physical property tests.
- **What's It Made of?**
Match everyday products to the minerals used to make them.
- **What's in a Bike?**
Match bike parts to the rocks and minerals used to manufacture them.
- **Before and After**
Match photos of mine sites during mining and after reclamation.
- **Processing Minerals**
Investigate various methods of particle separation, including sieving, magnetic separation, and flotation.
- **Colour Your Mine**
Colour pictures of the stages of the mining cycle.

Students could also try the **Amazing Mine Challenge**, an information scavenger hunt in which they tracked down answers to questions in a Challenge booklet. Completed booklets were entered in a draw for prizes, including MP3 players and the bikes used in the activity **What's in a Bike?**

Mining Matters' participation in the 2009 *Mining in Society Show* was hugely successful. We hope for similar success at the *Mining in Society Show* in St. John's, Newfoundland and Labrador, in November 2009, and Vancouver, B.C., in May 2010.

PDAC 2009: A Wealth of Information

At the *Prospectors and Developers Association of Canada 2009 International Convention and Trade Show*, held in Toronto in March, bright red *Mining Matters* T-shirts announced that we were there, introducing teachers and over 150 students to the world of mineral exploration, enhancing their knowledge of both Earth science and the modern resource industry. Encouraged by our 2008 convention success, we again delivered three days of educational programming—one for teachers and two for students—incorporating guest speakers, hands-on learning activities, and visits to the Trade Show floor.

The 2009 Teachers' Day program, on Sunday, March 1, included a tour of the Trade Show floor, networking opportunities, a presentation about the professional roles and global locations involved in resource development, and *Mining Matters* workshops that provided resource kits and the training to use them. Participants were enthusiastic about the information and resources provided and told us they appreciated learning about the resource industry's international nature and its innovative technologies.

We also designed a complete convention experience for students, providing transportation from their school, our signature *Mining Matters* T-shirts, curriculum-aligned programming, and group leaders to guide them through their day. On Monday, March 2, we welcomed three Grade 4 classes from Forest Manor Public School, Toronto, with their teachers and parents. On Tuesday, March 3, we worked with students from Pine Ridge Secondary School, Pickering, and Wexford Collegiate School for the Arts, Scarborough.

Our visiting Grade 4s enjoyed a full morning incorporating five activities:

- With Sylvia Gumpesberger from George Brown College, they investigated thermal properties of materials and ways to identify a real diamond.
- With Peter Russell from the University of Waterloo, they learned about the minerals in rocks and how to make their own rock collection.
- With Ken Steele from the Ontario Ministry of Northern Development and Mines, they tried to "stump the geologist" —Ken continued his unbeaten streak!
- With Lesley Hymers from the *Mining Matters* team, they contemplated problems and solutions related to aggregate mining.
- With Laura Clinton from the *Mining Matters* team, they were challenged to match everyday products with the rocks and minerals used to make them.



After lunch, our ever-popular mining simulation—extracting chocolate chips from cookies and eating the profits—was followed by a tour of the Trade Show floor. During the tour, students searched for answers to questions in Scavenger Hunt booklets, wrapping up a full day of learning.

If you would like your class to participate in next year's program, please call *Mining Matters* at **416-863-6463** or e-mail pdacmm@pdac.ca

Brought to You by CGF



Mining Matters has some tremendous supporters, for which we are very grateful. At this time, we would like to thank the Canadian Geological Foundation (CGF) for two grants, totalling \$11,000, recently given to *Mining Matters* from the Foundation's Jérôme H. Remick III Endowment Trust Fund.

The grants provide a second year of support for *Mining Matters'* two *groundWORK* newsletters, which are distributed to nearly 10,000 elementary and secondary school educators. The newsletters often include supplementary teaching resources such as posters, puzzles, and DVDs. The CGF funding has also enabled us to develop and produce our latest supplementary teaching resource, the poster *Cutting Edge*—included with this year's newsletter.

The Canadian Geological Foundation is dedicated to furthering geoscience in Canada and plays a key role in sustaining geoscience education, outreach, and awareness across the country.

2010 Connection

For the last few years, *groundWORK* has featured a 2010 Connection, in honour of the Olympic Games coming to Vancouver, B.C., in February 2010. This year, as the last in the series, we have two pieces: one about jade, B.C.'s official gemstone, and the other looking at the BC Museum of Mining.

Jade: Stone of Heaven

Jade has a split personality. Until 1863, all jade was considered equal, but then a French mineralogist determined that "jade" was in fact two different minerals: jadeite and nephrite, similar in appearance and properties, but with different chemical compositions.

Jadeite, the rarer form, is considered the finer of the two and used mostly for jewellery. It occurs in black, white, mauve, orange, and brown hues, but the most highly prized varieties are an intense translucent green. Nephrite, the more common mineral, is usually opaque, and comes in green, white, yellow, and black. Both are extremely tough minerals—their tight interlocking crystals make them exceptional material for carving—but it is nephrite that the world recognizes in the intricate *objets d'art* carved by the Chinese for over 5,000 years. And it is nephrite that is one of Canada's least recognized exports, for few know that B.C. is the world's top producer of nephrite. In fact, from 1975 to 2005, B.C. annually produced more than three-quarters of the world's total nephrite production, worth approximately \$3.5 million.

Nephrite had its beginnings in B.C.'s history in the Lillooet area, north of Vancouver, where it was first discovered 5,000 to 6,000 years ago by Aboriginal people, who used it to make tools and trade goods. The mineral had been created between 50 and 185 million years ago,

when two massive tectonic plates collided and buckled upward to create the Cordilleran mountain region that stretches from the Yukon to Mexico. During that process, heat and pressure acted on soft serpentine, where it was forced against igneous rock such as granite, transforming it into hard nephrite.

B.C.'s global reputation as the primary source of nephrite began during the Cariboo Gold Rush in the 1860s, when Chinese miners found it alongside gold. To them, gold was only wealth, while jade was priceless. They knew it as the "stone of heaven," representing good luck, health, and happiness, and in the 1900s, shipped tons of it to China.

In the 1950s, the discovery, near Lillooet, of a high-quality, apple-green clear nephrite once again bolstered shipments, and from 1957 until the end of the 1960s, the area produced more rough nephrite jade than the rest of the world combined. New deposits discovered in northern B.C. attracted the industry's attention, but Lillooet remained B.C.'s historic Jade Capital.

In 1968, jade became the official gemstone of B.C. Today, Lillooet commemorates its place in B.C. history and honours the provincial gemstone with a unique nephrite jade park and walk, featuring 30 different pieces of the mineral. The polished faces of the four boulders displayed outside the town's museum invite touch and inspire visitors to hunt down the smaller monuments distributed throughout the town and surrounding area.



Cutting Edge Hits the Ice

Mining Matters has a new poster rolling off the press this fall, the second in our series illustrating the mining industry's relationship to familiar products in our lives. *Cutting Edge* translates the speed, power, and grace of one of Canada's most popular sports, skating, into some of the metals and minerals that make it possible. The poster features prominent Canadian athletes and explores the equipment and venues that help them pursue glory, and even Olympic medals, in hockey, sledge hockey, figure skating, and speed skating.

Our first poster, *From Northern Lights to Urban Trails*, distributed in 2007, drew such an enthusiastic response that we printed over 20,000 for educators across Canada and developed a Web version for download. We look forward to your response to this latest education tool.

BC Museum of Mining

With the 2010 Olympic Games coming to Vancouver, B.C., many Canadians are making plans to attend them and also to explore B.C. For those interested in geology and mining, an interesting spot lies halfway between the Vancouver and Whistler Olympic competition locations.



Image courtesy of the BC Museum of Mining

The BC Museum of Mining, located beside the Sea to Sky Highway in Britannia Beach (south of Squamish), offers an in-depth look—literally—at a mine that was once the largest copper mine in the British Commonwealth. At the museum, visitors can experience the underground on a train ride deep inside a mining tunnel, pan for and keep real gold, and look inside the Mill—a National Historic Site. They can see mining demonstrations, as well as displays that explore B.C. mining history, and check out the giant tires of a Super-Haul Truck. They might even recognize the site from scenes in *X-Files* or *Scooby Doo 2*.

The Britannia Mine opened in 1904, and until its closing in 1974, over 50 million tons of ore were extracted from it. Metals produced from that ore were copper (650,000 tons), zinc (137,000 tons), lead (17,000 tons), cadmium (500 tons), silver (188 tons), and gold (15.6 tons/500,000 ounces). The mine's preservation and recent restoration provides an excellent opportunity to learn more about B.C.'s mining practices of the past, present, and future.

To learn more about this historic site, go to www.bcmuseumofmining.org

Field Trip Subsidies

The *Mining Matters* Field Trip Subsidy Program allots up to \$5,000 annually to help teachers enrich their school-based geoscience program. Any Ontario teacher who has completed an in-service workshop and uses a *Mining Matters* resource kit in the classroom may apply for the \$10-per-student subsidy for a geology or mining-related field trip.

Subsidy applications are considered on a first-come, first-served basis. We ask teachers and students to submit a summary of their experiences at the end of their adventure. Go to our Web site for field trip suggestions and to download an application form.

For more information, please call 416-863-6463, ext. 321, or e-mail pdacmm@pdac.ca

Four Rockin' Field Trips

Museums give us great indoor opportunities to learn about Earth composition, complexity, and history, but there's nothing like an outdoor look at the Earth's wonders to get a sense of their scale and place in time. Here are four field trip destinations that display evidence of their geological heritage in parks and gardens, or on walks.

University of Waterloo: Peter Russell Rock Garden

Tucked between the Biology and Math buildings at the University of Waterloo is the Peter Russell Rock Garden, home to over 40 beautiful rock specimens. They are primarily from Ontario, but also represent Newfoundland and Labrador, Québec, Saskatchewan, Alberta, and B.C., as well as Pennsylvania.

On each rock specimen, a bronze plaque provides information about its geological age, name, and location, and also names the donors. The rock collection includes jasper conglomerate, argillite and quartzites, Gowganda conglomerate, glacial striated quartzite, Jacobsville sandstone, and basalt from the Sault Ste. Marie and Elliot Lake area. Gold ores come from Timmins and Hemlo, anorthosite and iron ore from Wawa, banded iron formation from Timiskaming, granite from Vermilion Bay, and stromatolitic marble and amethyst from Thunder Bay.

To learn more, go to <http://www.earth.uwaterloo.ca/outreach/rockgarden/index.html>

City of Waterloo: The GeoTime Trail

In 2007, in Lookout Park, the City of Waterloo officially opened a GeoTime Trail as part of celebrations marking the city's 150th anniversary.

The GeoTime Trail, brainchild of Alan Morgan, a University of Waterloo Earth and Environmental Sciences professor, traces the geological past of Waterloo with interpretive signs along a 4.567 km route. The distance of the trail corresponds to the current estimates of the age of the Earth at 4.567 billion years. Every metre of the trail marks one million years of geological time; each millimetre represents 1,000 years.

Walking along it, individuals can appreciate the immensity of geological time and see where geological periods start and end. They can learn when different biological organisms appeared on Earth and when major catastrophic events took place. For example, all of human history, in terms of agriculture and urban settlement, is represented by the last 10 cm of the trail.

The Waterloo GeoTime Trail, the first of this type in Canada, was developed as a Canadian contribution to the UNESCO-sponsored International Year of Planet Earth in 2008.

To learn more, go to <http://www.waterloo.ca/desktopdefault.aspx?tabid=2106>

Haileybury: RockWalk Park

Haileybury sits in the Timiskaming area of Ontario, which features a geological diversity that might be among the best in the world. RockWalk Park, an outdoor geological garden, is located beside the Haileybury School of Mines. The garden features large samples of ore, collected from mines across the country, which illustrate various rock types, including semi-precious and unusual specimens.

The rock and mineral exhibits in the park are arranged along interconnected pathways according to type of ore and theme: Metallic Ore, Non-metallic Ore, Local Rock Type, Unusual Geological Structures, Prospecting Guides and Stains, Cultural Exhibits, and Semi-precious Minerals.

A key feature of the park is the inclusion of cultural displays that depict the role that rocks and minerals have played throughout human history. Also interesting are the rocks that exhibit fluorescence under ultraviolet light—a night visit might be required! A tour brochure, available at the park entrance, guides visitors, and information plaques help identify the displays. School tours are available.

For more information, go to <http://rockwalkpark.com>

Almonte: Metcalfe Geoheritage Park

In May 2010, Almonte, located 50 km southwest of Ottawa, will officially open Metcalfe Geoheritage Park, an outdoor space highlighting the area's geodiversity and geohistory. This park could be the first of its type to be opened by a municipality anywhere in the world.

Large blocks and boulders representative of the regional landscape are being moved to the park site, situated in town beside the Mississippi River lower falls. Stromatolites, thrombolites, and biofilm structures, abundant in the local strata, will be given special emphasis in the displays. About half the blocks within the park are sedimentary dolostone from nearby bedrock sources. The random orientations of bedding (depositional layering) in these blocks will allow visitors to learn how a compass is used to measure the orientation of tilted strata, an important step used by geoscientists to unravel the geohistory of layered rocks that have been folded by compression.

Metcalfe Geoheritage Park is named after the late Dr. Archibald Metcalfe, a long-time local physician and politician who also contributed greatly to the program of municipal hydro systems in the province as Hydro Commissioner. The park has no Web site yet, but you can look for the latest news on the Internet, using the search term "Metcalfe Geoheritage Park."

Perpetual Metals

Recycling is not just about cans, bottles, and paper. Once mined and refined, many metals are perpetually recyclable—they can be used over and over again without changing their chemical and physical properties—reducing the need for costly exploration, mining, and metal processing activities.

Metals used in alloys, such as tungsten, molybdenum, titanium, and vanadium, can be recovered from stainless and specialty steels. Iridium, the rarest of the platinum group metals, can be recovered from electronic, automotive, and other post-consumer scrap. Zinc, nickel, and lithium are recoverable from the single use dry-cell batteries that power cameras, flashlights, and toys.

Used motor oil is insoluble and slow to degrade, and it can contain additives and contaminants (e.g., arsenic, lead, magnesium, cadmium, chromium, benzene, and zinc) that are potentially toxic and carcinogenic. One litre of oil can contaminate a million litres of groundwater. On the other hand, recycling just 7.5 litres of motor oil could produce enough electricity to run an average household for almost 24 hours.

Liquid Crystal Displays (LCDs), used for computer and TV monitors, gaming devices, clocks, calculators, and telephones, can contain valuable metals such as gold, silver, copper, and tin, but they also can contain toxic metals such as antimony, chromium, cadmium, mercury, and lead. When discarded, these harmful elements could leak into the groundwater or, if incinerated, could pollute the air.

By recycling, we help conserve our Earth's resources and reduce waste in landfill sites. Recycling metals means less energy is needed to locate, transport, and process ore.

Lead-acid batteries are recycled more than any other consumer product—they have a 97 per cent recycling rate! Used in vehicles, to back up telephone and computer systems, and to provide emergency power, the typical new lead-acid battery contains 60 to 80 per cent recycled lead and plastic.



Ontario consumers who want to find nearby collection locations for their electronic or hazardous household waste can search on-line by municipality, postal code, or material type.

Go to www.dowhatyoucan.ca

On the Canadian Recycling Web site, managed by Natural Resources Canada, you'll find information about metal and mineral recycling in Canada, as well as a Canadian Metals and Minerals Recycling Database, which lists companies that recycle particular metals and minerals.

Go to www.recycle.nrcan.gc.ca

Junior Miner Winners 2009

Thank you to the following schools for encouraging students to enter the 2009 Junior Miner of Ontario Competition. The many impressive entries included posters, poems, essays, stories, activity books, and picture collages.

James R. Henderson Public School, Kingston
Khalsa Community School, Mississauga
Mary Ward Catholic School, Niagara Falls
Murray Centennial Public School, Trenton
Our Lady of Peace, Stoney Creek
RJ Lang Elementary and Middle School, North York
St. Mary's School, Campbellford
St. Theresa Catholic School, Whitby
Trillium Waldorf School, Guelph
West Humber Junior Middle School, Toronto
Whitefield Christian Academy, Scarborough
Yorkwoods Public School, North York

Junior Winners

Diamond Prize

Brook Rumpel

Poster: *Rocks and Minerals Indoors and Outdoors*
Murray Centennial Public School, Trenton
Kawartha Pine Ridge District School Board

Platinum Prize

Emily Quinn

Poster: *Wheel Away with Minerals*
Murray Centennial Public School, Trenton
Kawartha Pine Ridge District School Board

Gold Prize

Shalom Yuen

Research Paper and Essay: *Mineral Treasures in Cellphones*
Whitefield Christian Academy, Scarborough

Dawson Ellis

Poem: *How Rocks are Important*
St. Mary's School, Campbellford
Peterborough, Victoria, Northumberland
& Clarington Catholic District School Board

Intermediate Winners

Diamond Prize

Elissa Faiazza

Information Booklet, Bookmark, Quiz, and Puzzle: *Rocking our World*
St. Theresa Catholic School, Durham Catholic District School Board

Platinum Prize

Sabrina Elahie

Information Booklet: *Diamonds are Forever*
St. Theresa Catholic School, Durham Catholic District School Board

Gold Prize

Chris Johnson

Iron Booklet, Fact Sheet, and Iron Card Game
St. Theresa Catholic School, Durham Catholic District School Board

Mining Matters Goes WHERE?

Launched in celebration of the International Year of Planet Earth, the first annual **WHERE** Challenge asked Canadian students aged 10–14 years two questions: What on Earth is in your stuff and **WHERE** on Earth does it come from?

Hundreds of students from across the country submitted imaginative contest entries, featuring analyses of everything from pencils and light bulbs to sports equipment and mascara. Three national and multiple regional cash prizes, totalling over \$16,000, were awarded to winning entries.

Mining Matters participated in the Ontario regional judging committee, which awarded prizes to entrants from Georgetown District High School (GDHS), Halton Hills, and Oro Township, Simcoe. One GDHS regional winner also won a national prize, earning his school a prize as well. *Mining Matters* staff attended the cheque presentation assembly at the school.

To see the winning entries or to learn about the 2010 competition, which invites entries until March 1, 2010, please visit the **WHERE** Challenge Web site:

<http://www.earthsciencescanada.com/where/>

Fun Activity Ideas

We've mentioned www.earthlearningidea.com before, when the Web site was in its early stages, and it's worth featuring again. You'll find dozens of activities that demonstrate erosion, rock formation, fossilization, the rock cycle, the formation of the Earth's crust, and more. You can search by categories or key words. Here are just a few samples:

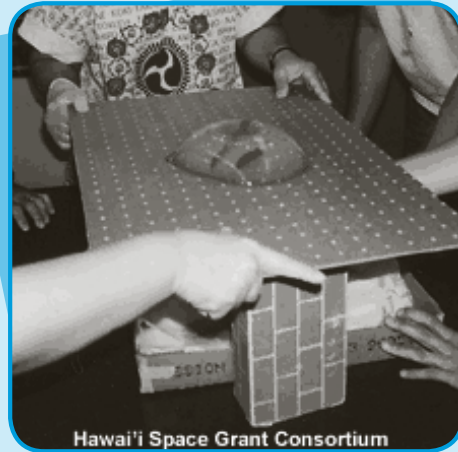
- **Dust Bowl** helps students investigate wind erosion.
http://aegsrv2.esci.keele.ac.uk/earthlearningidea/PDF/61_Dust_bowl.pdf
- **Grinding and Gouging** shows students how moving ice can grind away rocks.
http://aegsrv2.esci.keele.ac.uk/earthlearningidea/PDF/60_Grinding_gouging.pdf
- **The Rock Cycle in Wax** demonstrates the rock cycle processes by using a candle.
http://aegsrv2.esci.keele.ac.uk/earthlearningidea/PDF/Rock%20cycle%20in%20wax%20final_July.pdf
- **Dig Up the Dinosaur** helps students learn to become fossil hunters.
http://aegsrv2.esci.keele.ac.uk/earthlearningidea/PDF/06_Dig_up_the_dinosaur.pdf

Activity: Gelatin Volcano

With the use of gelatin and coloured water to emulate dike-forming magma, students can learn about magma movement and volcanic landforms in a fun, hands-on way!

Materials

- Unflavoured gelatin, 4 packages (28 g box)
- Water
- Bowls or bread pans, one 2-litre or set of smaller sizes
- Red food colouring
- Plastic syringe (available at pet stores)
- Spoon
- Large knife
- Pegboard, 40 x 60 cm, with 5-mm holes 2.5 cm apart
- Two bricks, 30 cm high
- Tray for catching drips
- Rubber gloves (optional)



Procedure

1. Prepare the volcano model by mixing the gelatin with 2 cups of cool water in a large bowl. Stir for 30 seconds. Add 6 cups of boiling water and stir until gelatin is dissolved. Transfer mixture to a 2-litre bowl, smaller bowls, or bread pans. Refrigerate at least 3 hours or until set.
2. Prepare "magma" by mixing water with enough red food colouring to make a very dark liquid.
3. Once the gelatin is set, loosen it by dipping the bowl briefly into a larger bowl of hot water.
4. Transfer the gelatin upside-down to the centre of the pegboard and lift off the bowl. The gelatin cast will settle somewhat after being removed from the bowl. It should resemble a colourless to milky, shimmering volcano. There should be no cracks in the gelatin, but it's OK to proceed if one develops during unmolding.
5. Place the pegboard on top of the two bricks.
6. Fill a syringe with red water. Remove air bubbles from the syringe by holding it upright and squirting out a small amount of water. Air tends to fracture the gelatin.
7. Predict what will happen when red water is injected into the gelatin cast. What direction will it go? What shape will it take? Will it erupt through the surface of the gelatin? If so, where?
8. Insert the syringe through a hole in the pegboard into the centre of the gelatin cast. Inject the red water slowly, at a rate of about 20 cc/minute, and watch carefully.
9. Describe how the experimental results compare with your predictions.
10. Refill and insert the syringe as many times as possible. Compare magma migration each time. Are there differences in the direction the magma takes when the syringe is inserted?
11. Looking directly down on the gelatin cast, sketch the positions and shapes of the magma bodies. Label your drawing "Map View."
12. Use a sharp knife to cut through the gelatin cast. Separate the pieces and examine the cut surfaces. Note the traces made by the magma bodies; these are similar to what we see in highway road cuts or cliff faces.
13. Sketch the positions and shapes of the magma bodies on a cut face. Label your drawing "Cross-sectional View."
14. Compare what you see in two dimensions on the cut face with what you see in three dimensions looking into the gelatin cast. Which view gives you more information? Why?
15. Discuss how and why magma moves through volcanoes.

You Could Win!

Go to www.pdac.ca/miningmatters

Complete our Readership Survey and you could win! See the enclosed Survey for details. Need another Survey? Download a copy from the Educators page on our Web site. And while you're there, explore *Mining Matters'* complete resource collection.

Four Billion Years and Counting: Canada's Geological Heritage

A new popular Earth science publication will be released in 2010. *Four Billion Years and Counting: Canada's Geological Heritage* will present the latest view of Canada's fascinating geology and its impact upon the lives of all Canadians. Written for a general audience, this multi-faceted story will demonstrate the influence of geology on our national wealth and health, using a variety of visuals to enhance and supplement the text.

The project to produce the book is a grassroots initiative of the Canadian Earth science community and involves contributions from academia, government, and industry. The book has been accepted as one of Canada's principal contributions to the International Year of Planet Earth, wrapping up in 2009. It will be published jointly by the Canadian Federation of Earth Sciences and Nimbus Press. To learn more about the book, visit the Earth Sciences Canada Web site: <http://www.earthsciencescanada.com/4by/>



Deformed Cretaceous sediments at the Cardinal River Coal Mine, near Hinton, Alberta

Junior Miner of Ontario Competition

The Junior Miner of Ontario Competition is an annual contest intended to inspire students to discover the importance of rocks, minerals, metals, and mining, along with the roles they play in our everyday lives. The competition, held each spring, features the outstanding work of students who submit a project demonstrating why Earth's rock and mineral treasures are important in our day-to-day lives. Five prizes, ranging from \$50 to \$150, are awarded to winners in both the Junior and Intermediate levels.

For details, see the enclosed flyer or go to www.pdac.ca/miningmatters/educators/junior-competition.html

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Mining Matters creates exceptional educational resources to meet provincial Earth science curriculum expectations. Since 1994, this 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.

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