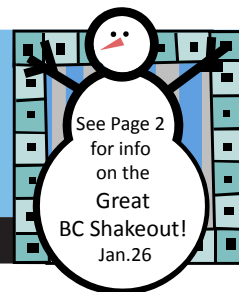


# Teachers' Winter 2011 Update

## Mineral Resources Education Program of British Columbia

WINTER 2011



*ROCKS,  
MINERALS,  
MINING &  
GEOSCIENCE  
IN THE  
CLASSROOM*



### LIBRARIANS!

Please post,  
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& share with  
teachers in your  
school.  
Thank you.



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## Happy 2011!

What a great holiday season! Welcome back to school after a well-deserved break. MREPBC wishes you all the best for this new year! We are delighted to, once again, bring you the support you need to incorporate geosciences and mining education into your classroom. We hope you enjoy this Winter's Update!

### NEW YEAR, NEW WEBSITE!



We are thrilled to present you with our new and improved website. The MREPBC has worked tirelessly over the last few months to provide you with a portal that has a fresh look and is easier to navigate. Some of the most exciting features in our new design are our *interactive* BC's Mineral Resources map and our searchable teacher resources database! To explore and enjoy our newly redesigned website, go to [www.bcm minerals.ca](http://www.bcm minerals.ca). We look forward to your feedback!

## MINERAL EXPLORATION ROUNDUP 2011

### WESTIN BAYSHORE, VANCOUVER - JAN. 24 - 27

*Mineral Exploration Roundup*, western Canada's major mineral exploration conference, is right around the corner. MREPBC is working for the 8<sup>th</sup> year in a row with conference hosts, the *Association for Mineral Exploration BC* (AME BC), to integrate teachers and students into this event.

#### MON. JAN. 24, SECONDARY ROUNDUP ROCKHOUNDS

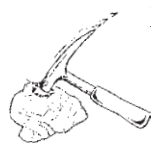
MREPBC is hosting a *careers exploration day* for high school students on Monday, January 24. Special guests, *Geology 12* students from West Vancouver Secondary, will display their geology projects in the main exhibit hall. Interested students from other high schools are invited to join them and explore *Roundup* through technical sessions, the trade-show, guest speakers from post-secondary programs and industry, free lunch, and more! *Students must be nominated by a teacher to attend*. More information can be found at: <http://www.bcm minerals.ca/s/OutreachPrograms.asp>.



Yukon Dan teaches everyone how to pan for gold at *Roundup*.

#### TUES. JAN. 25, ELEMENTARY ROUNDUP ROCKHOUNDS

MREPBC is delighted to host the 8<sup>th</sup> group of *elementary Roundup Rockhounds*. Students from five Grade 5 and 7 classes (Sacred Heart School, Ladner; St. Joseph the Worker School, Richmond; and Canyon Heights Elementary, North Vancouver). These students have been working on Earth Sciences and mining units this fall and their class projects will be on display at the conference all week! They will experience a fun, hands-on program that will include: an exploration geology presentation, Stump the Geologist, rock, mineral and fossil collections, a Free Geek station, gold panning, a Treasure Hunt, and more!



#### THURS. JAN. 27, TEACHERS' DAY AT ROUNDUP 2011

Teachers are invited to attend *Roundup* for a unique opportunity to learn more about modern exploration and mining, and its community of skilled people who are part of this essential industry. Guest speakers and a panel discussion on the mine development process, the issues around mining, and its current workforce crisis are planned, as well as an extended



*TEACHERS' DAY, continued Page 2*

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Involve Your Students! & Uses of Minerals in Sports (see insert)	



If you are interested in attending some of the following events, please fill out the registration form on Page 4. The MREPBC is pleased to provide limited TOC support where indicated (TOC).

### THE GREAT BC SHAKEOUT! - WED., JAN. 26

In our province it is crucial that residents understand the risk of earthquakes and be personally prepared! You can help by involving your students in the largest earthquake drill in Canadian history. The Great BC ShakeOut!, organized by the *BC Earthquake Alliance*, is a province-wide earthquake drill being held on January 26 at 10:00 am. During ShakeOut!, participants will be asked to "Drop, Cover and Hold On" for up to two minutes, in response to a simulated earthquake event. The success of the ShakeOut! depends on everyone's participation. The organizers, and MREPBC, ask that you promote this activity in your entire school.



Register at [www.ShakeOutBC.ca](http://www.ShakeOutBC.ca) to be counted in the ShakeOut! BC drill. Download and print ShakeOut! BC materials including posters, fliers, drill manuals etc. for use in your school, community or work site.

### KEG 2010 COMMUNITY LECTURE SERIES, JANUARY - APRIL 2010

Hosted by the *Kamloops Exploration Group* (KEG), this free lecture series is designed to improve the general public's understanding of Earth Sciences and mineral exploration. The series runs on Wednesday evenings (7pm) at the Alumni Theatre Clock Tower Building (TRU). These lectures are a great opportunity to meet with local geologists and to find answers to your geological questions. The first lecture is Jan. 19<sup>th</sup>. For more information visit: [www.keg.bc.ca](http://www.keg.bc.ca) or email: [karpoff@telus.net](mailto:karpoff@telus.net).



### KEG CONFERENCE, KAMLOOPS - APRIL 6-7 TOC

The *Kamloops Exploration Group* (KEG) will be holding its 24<sup>th</sup> annual conference at Ora's Convention Centre in Kamloops. KEG encourages teachers to learn more about the minerals industry through their conference and have again offered to waive the registration fee for teachers. MREPBC will provide TOC support for a limited number of teachers to attend. To register through the MREPBC, see Page 4. For more details visit: [www.keg.bc.ca/conference.htm](http://www.keg.bc.ca/conference.htm). Deadline: March 28.



### DID YOU KNOW?

Copper has antimicrobial qualities that have been known since ancient times. A new technique of adding a special copper oxide to fabric allows for garments to have the ability to fight fungus and other microbes! Learn more at: <http://www.cupron.com/>



### BC GEM SHOW, ABBOTSFORD - APRIL 8-10



This annual show at the Central Fraser Valley Fairgrounds features dealer and club displays with rocks, minerals and gems from across BC, as well as a children's creative workshop. Admittance to the show on Friday, April 8<sup>th</sup> is free for students accompanied by a teacher and chaperoning adults. For more information visit: [www.lapidary.bc.ca/gemshow.html](http://www.lapidary.bc.ca/gemshow.html).

### MREPBC WORKSHOPS, SD 43 - THURS., APRIL 21

MREPBC will be presenting half-day workshops for our teacher-developed, elementary resource units on this district-wide pro-d day.

*K-3 Integrated Resource Unit: Kids and Rocks* is a cross-curricular, hands-on unit that uses rocks as theme in language arts, socials, math, arts and science lessons.

*Grade 5 Integrated Resource Unit on Mining* uses mining as the theme to learn about Earth's mineral resources, how we use them, how and where mining is carried out today, and how it was done in the past. Both units come as complete kits with binders and a host of support materials. For details: [www.bcminerals.ca/s/ResourceUnits.asp](http://www.bcminerals.ca/s/ResourceUnits.asp).



The tentative location is Pinetree Secondary. The MREPBC registration fee is \$50 per teacher. For more details as they are confirmed, please visit: [www.bcminerals.ca/s/TeacherWorkshops.asp](http://www.bcminerals.ca/s/TeacherWorkshops.asp) or contact Laura Estrada at [lestrada@bcminerals.ca](mailto:lestrada@bcminerals.ca).

### MINERALS NORTH 2010, STEWART - APRIL 27-29

This conference brings the minerals industry together with a broad spectrum of people in northern BC communities. It offers teachers a great venue to meet people and learn about mining, exploration, and the impacts and benefits of mining.

Organizers will waive registration fees for a limited number of teachers to attend; MREPBC will provide TOC support if required. For updates on *Minerals North 2011* events and roster of speakers visit: [www.mineralsnorth.ca](http://www.mineralsnorth.ca). Teachers can indicate their interest to attend by filling out the registration on Page 4 or e-mailing [lestrada@bcminerals.ca](mailto:lestrada@bcminerals.ca). Deadline: April 20.



*TEACHERS' DAY, continued from Page 1*

exploration of the exhibits, an opportunity to attend technical sessions, and gold panning. Lunch will be provided. MREPBC will offer a limited number of teachers' release time to attend. TOC

This is an excellent pro-d opportunity for teachers of all grade levels and subjects. Participation is free. To register, see Page 4.

**Note:** Teachers (science, social studies, career educators, etc.) who would like to attend *Roundup* on another day may also register through MREPBC on Page 4.



## CHILEAN MINERS' RESCUE

The story of the 33 men trapped in an underground mine in Chile captured all our attention from the first tragic news on August 5 till their rescue on October 13. The incident was close to the hearts of mining people everywhere, and the miners' rescue brought relief and hope for future rescues.



There was a Canadian connection to the rescue efforts. Oil and gas industry expert *Precision Drilling* of Calgary, AB shipped a special drill bit made by *Mining Technologies International* of Sudbury, ON. It would have been used by one of Precision's rigs, already in Chile, to ream one of the original pilot holes to a diameter through which a man could have been rescued. Doing that, however, would have taken until near the end of the year. Instead, a large diameter percussion drill sent by American firm *Center Rock* did the boring of the rescue shaft much faster.

Another Canadian connection came in the form of temporary shelters supplied by Calgary's *Atco Structures & Logistics* and its South American partner *Tecno Fast Atco*. The mobile buildings were used for triage and medical observation of the miners.



## YEAR OF SCIENCE

Who are our BC scientists? What do they do? How is science part of your life? Find out and share your stories! The Government of British Columbia proclaimed *The Year of Science* as an initiative to raise awareness and interest in science across BC.



If you are an Educator looking for information about how to better inspire and excite your students about science, then this is the place for you. Visit: [www.yearofsciencebc.ca](http://www.yearofsciencebc.ca).



Students can also enter in the *Year of Science 'Choose Science. Go Far. Win Big.'* contest - they will not only have an opportunity to showcase their research, science skills and knowledge - they could win a scholarship worth \$25,000 towards their future science goals! For more information and contest rules, visit: [www.yearofsciencebc.ca/science-is-exciting/contest](http://www.yearofsciencebc.ca/science-is-exciting/contest).

## SWITCH TO CYBER-UPDATES!

MREPBC would like to dramatically reduce the number of mailed-out paper *Updates*. Our goal is to be completely updated by the end of 2011 and provide our newsletter predominantly through our website. Help us speed up this conversion by emailing your contact information to: [lestrada@bcminerals.ca](mailto:lestrada@bcminerals.ca). Thanks for your cooperation!



## SUSTAINABLE RESOURCES 12 ONLINE COURSE

Patrick Conrad, a longtime secondary science teacher in Abbotsford, now with Fraser Valley Distance Education School (FVDES), has developed a new online course for students who have completed *Sustainable Resources 11* and wish to further explore the mineral resources sector in Grade 12. This comprehensive, well-illustrated online course provides all the information outlined in the IRPs, as well as worksheets, activities, and quizzes. Video tutorials are scheduled to assist learning along the way, and other arrangements can be made for additional assistance from the instructor. Students will be able to take this course beginning in January 2011 by registering at <http://www.fvdes.com/registration/registration.html>.



## GEOLOGIC JOURNEY II - NEW CBC SERIES

On October 21, 2010, CBC's *Nature of Things* aired the first episode of the five-part series *Geologic Journey II* which looks at world geology. It starts with Tectonic Europe, followed by African Rift, Pacific Rim-West, Pacific Rim-Americas and Collision Zone- Asia. The series, which is a sequel to *Geologic Journey*, may be viewed on line: [www.cbc.ca/documentaries/natureofthings/geologicjourney2](http://www.cbc.ca/documentaries/natureofthings/geologicjourney2). Teachers may purchase copies in Spring 2011.



## NEW RESOURCES FROM EdGEO

Go to: [www.edgeo.org/en\\_CA](http://www.edgeo.org/en_CA) and click on "Resources" to find two new free downloadable manuals full of lesson plans and activities for the classroom. *Bringing Earth Science to Life* pulls together all you need to know about putting on an EdGEO workshop and provides over a hundred classroom-ready activities. *Putting the Earth into Science* aims to integrate Earth Science topics into the core subjects of physics, chemistry, biology and mathematics through an interdisciplinary approach.



## ORE TO MORE - VIDEO

*Kennecott Copper Utah* has created a highly entertaining and relevant 6-minute video depicting how we mine and process copper and the need of copper in our everyday lives. You and your students will love it! Visit: [www.kennecott.com/search-results/?search=ore+to+more](http://www.kennecott.com/search-results/?search=ore+to+more). Go to the "Ore to More" video link.



## YUKON MINING CAREERS HANDBOOK

An excellent resource from the *Yukon Mine Training Association* for career educators (and your students) who want a broader picture about the wide variety of careers in the minerals industry, as well as training and skill acquisition, and related topics. Download the full handbook at: [www.yukonminetraining.com/uploads/documents/YMTA\\_careers\\_handbook.pdf](http://www.yukonminetraining.com/uploads/documents/YMTA_careers_handbook.pdf).



# Registration

# Materials for Order

## MINERAL EXPLORATION ROUNDUP 2011

- I would like to nominate a secondary student(s) (name(s) attached) to attend *Roundup* (Monday, Jan. 24)
- I would like to attend *Career Educators Roundup Forum* (Thursday, Jan. 27)
- I would like to attend *Roundup* for my own professional development on \_\_\_\_\_ (date)



Please complete and fax the contact information below. You will be contacted with additional details. **Deadline Jan. 20.**

## KEG CONFERENCE - APRIL 2011

I would like to attend the *KEG* conference in Kamloops on:

- Tuesday, April 6    or     Wednesday, April 7
- I require a TOC (My principal's and superintendent's contact information is attached.)

Please complete and fax the contact information form below. You will be contacted with additional details. **Deadline: March 28.**

## MINERALS NORTH - APRIL 2011

- I am interested in attending the *Minerals North 2011* conference in Stewart,  April 28 Or  April 29
- I will require a TOC (My principal's and superintendent's contact information is attached.)

Please complete and fax the contact information below. You will be contacted with additional details. **Deadline: April 20.**

## BC MINING WEEK COMMUNITY FAIR - MAY 11

- My class ( \_\_\_\_\_ students) would like to attend the BC Mining Week Community Fair.

Please complete and fax the contact information form below. You will be contacted with additional details. **Deadline: April 27.**

## FREE RESOURCES

Don't forget to order your *free* MREPBC-developed materials!

Download supplementary resources and activities for your classroom, or explore our new *interactive Mining in BC Map* at [www.bcminerals.ca/s/CurrentOperations.asp?ReportID=417105](http://www.bcminerals.ca/s/CurrentOperations.asp?ReportID=417105)



Please send me:

- Mining in BC* poster
- Mining in BC* bookmarks \_\_\_\_\_ copies
- I am an Exploration Geologist* colouring book

○ Please send a single copy free of charge.

You may pick up additional copies from the MREPBC office at no charge or order additional copies for the cost of postage (approx .50¢ per copy)

- Minerals of Canada* poster (appropriate for all)
- Northern BC Geological Landscapes Highway Map* (appropriate for Gr. 7 and up)
- From Northern Lights to Urban Trails* poster (appropriate for all)
- Cutting Edge* poster (appropriate for all)
- Sustaining The Future* DVD (from Highland Valley Copper; appropriate for Gr. 5 and up)



## NEWSLETTER & UPDATES

Want to receive the *Update* by email? Or, if you would like to be removed from the mailing list (both paper and email), drop a line to [lestrada@bcminerals.ca](mailto:lestrada@bcminerals.ca).



You can also download the electronic version *in full colour and with live links* at [www.bcminerals.ca](http://www.bcminerals.ca).

Fax the completed **Contact Information** below (or mail with payment, if applicable) to:  
**Mineral Resources Education Program of BC, 900 - 808 West Hastings Street, Vancouver, BC V6C 2X4**  
 Tel: 604-681-4321 ext 108/115    Fax: 604-681-5305



## Registration/Contact Information

Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

School Name and Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_

Grade Level: \_\_\_\_\_ Subjects Taught: \_\_\_\_\_

School Phone: \_\_\_\_\_ School Fax: \_\_\_\_\_

Home Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Home Phone: \_\_\_\_\_ Home Fax: \_\_\_\_\_

## ***Kids & Rocks* - OUR POPULAR WORKSHOP FOR PRIMARY STUDENTS!**



Ann Brace, a life-long primary teacher, presents a half-day (2.5-3 hours), hands-on workshop for K to Grade 3 students to explore different rocks, their properties, what they are made of and how they formed.

Each student is given a collection of rocks and minerals to investigate as Mrs. Brace guides their exploration. Students will observe and test key geological properties of the samples. They will observe and touch, sort and classify, work independently and work together.



*Kids & Rocks* addresses many PLOs in the K-3 Curriculum. See: [http://www.bcminerals.ca/pdf/Kids and Rocks Science Curriculum Correlations 2009.pdf](http://www.bcminerals.ca/pdf/Kids%20and%20Rocks%20Science%20Curriculum%20Correlations%202009.pdf)



Everything your students need to make this educational and fun is provided: rocks and minerals, hand lenses, magnets, streak plates, hardness kits, and exploration cards.

The *Kids & Rocks* workshop is currently available to Lower Mainland schools only.

The cost is \$5.00 per student, with a minimum charge of \$100.00/class. The classroom teacher is asked to participate in the work, along with 2-3 parent helpers. Each teacher receives a package of *Kids & Rocks* support material to encourage further teaching about rocks in the classroom.

**BOOK YOUR WORKSHOP NOW! CONTACT LAURA ESTRADA AT [LESTRADA@BCMINERALS.CA](mailto:LESTRADA@BCMINERALS.CA) OR 604-681-4321 x 108.**

## ***STUDENT CONTEST!***



What on Earth is your stuff made of? And WHERE on Earth does it come from? Answer these questions in the Canada-wide contest (ages 10-14) by telling a story about any object in your home or school, the one or more non-renewable Earth resources needed to create it, and WHERE on Earth these



resources come from! Both individuals and classes can participate. Entries of all creative types are accepted, but must be submitted in a digital form.

For information and guidelines visit: [www.earthsciencescanada.com/where](http://www.earthsciencescanada.com/where).

**Entry Deadline: April 1, 2011.**

**TURN OVER THE PAGE TO SEE SOME OF THE MANY USES OF MINERALS IN SPORTS!**



## ***GOLD PANNING IN THE CLASSROOM - YUKON DAN***

'Yukon Dan' Moore is a one-of-a-kind presenter who teaches the art and science of gold panning to students of all ages.

Dan's 75-90 minute hands-on workshops support a wide range of topics related to social studies, Earth science, sustainable resources, and other curricula. 'Yukon Dan' engages students in learning about the history of the Canadian gold rushes, particularly the Fraser River, Barkerville and Yukon gold rushes, pioneer days, rocks and minerals, the importance of minerals in everyday life, and much more!



Suitable for all grade levels. \$6 per student (school rate only).

Experience Gold Fever. Book Yukon Dan today!  
Phone: 604-948-4941; E-mail: [gold@yukondan.com](mailto:gold@yukondan.com);  
Website: [www.yukondan.com](http://www.yukondan.com)

## ***BC MINING WEEK COMMUNITY FAIR, VANCOUVER - MAY 11***

To celebrate *BC Mining Week 2011*, geoscience, mining organizations and exploration companies will work together to host a one-day community fair (open to the public) in the courtyard at the Vancouver Art Gallery on Wednesday, May 11. MREPBBC will arrange a variety of hands-on activities, including geologic mapping, gold panning, a treasure hunt, fossil making, and more for visiting student groups to participate in during their visit. This special fair is a great opportunity for students who are learning about geology, mineral resources and mining in the classroom.



MREPBBC will coordinate the participation of **ten** classes to attend this **free** event and will cover the cost of transit and travel (up to \$200 maximum). To have your class attend, please fill out the registration information on Page 4. Priority



will be given to intermediate classes. Visit the 2009 BC Mining Week Community Fair photo gallery at: [www.bcminerals.ca/s/OutreachPrograms.asp](http://www.bcminerals.ca/s/OutreachPrograms.asp).



## Uses of Minerals in Sports

### Sledding Sports

Steel is the basis of competitive sports such as luge, skeleton and bobsleigh, and allows sledders to reach speeds of up to 140 km/hour! Molybdenum is a key component in the manufacture of steel, giving it strength. Bobsleds got their name when sledders bobbed up and down as they sent their steel-bodied sleds down the run. Now, the shell, or cowling, of the bobsled is made of fibreglass, which is made by weaving glass into a fine fibre. Glass is made from silica, or in other words, quartz sand.



### Metals to Medals

The gold, silver, and bronze medals for the Vancouver 2010 Olympic and Paralympic Games were the first Olympic medals to contain recycled metals recovered from e-waste! Gold medals are not made of solid gold - they are made by placing a layer of gold (7.5%) on a silver base (92.5%). Silver medals contain 7.5 % copper because pure silver is too soft for the medals. Bronze (an alloy of copper and tin) medals are made mostly of copper. ~ 903 kgs of Copper were used in the production of all 2010 Olympic medals.



### Hockey

You wouldn't be able to play hockey without mineral resources. Many minerals are needed to make hockey happen! Blades are made from chrome-plated carbon steel. Aluminum, titanium, and graphite help make hockey sticks light and flexible. Sulphur is used in the manufacture of rubber from crude gum for hockey pucks. Helmet and mask cages use stainless steel, made with iron, nickel and chromium. Helmets themselves are made of composite material that may include carbon fibre. Goal posts are made of steel, PVC (polyvinyl chloride), and aluminum. Wow!



### Lacrosse

Lacrosse evolved from Native American warrior training into what is now recognized as Canada's national summer sport. The sticks for lacrosse rely on shafts made of minerals such as aluminum, graphite, and titanium, or alloys of aluminum, magnesium, scandium, and zinc. Sulphur is incorporated in the production of rubber (made from crude gum) for the balls. The goal posts are made of steel, PVC (polyvinyl chloride), and aluminum.



### Bicycling

A bicycle, a popular recreational and transportation vehicle, is made mostly of metal. Titanium frames are featherweight, quite flexible but also very expensive. Aluminum frames are lightweight and cheaper, but not as flexible. Chromoly (chromium-molybdenum) steel frames are strong and affordable, but heavy. Most other parts in a bicycle (breaks, gears, crank, etc.) also require steel, titanium, aluminum, magnesium, sulphur, etc. Helmets are a must when biking! Bike helmets are made of calcium carbonate (limestone), talc, clays, mica and more.



### Football and Soccer

Footwear in these sports needs to have good grip for stability. Cleats are made with zinc and other metals. Borax, salt, chromium, and sulphur are used in preparing the shoe leather. Molybdenum and titanium are used to help stabilize the sole. The playing surfaces require fertilizer made from potash (KCl). Stadiums require mineral products such as steel (iron, zinc, molybdenum, etc.), concrete (limestone, clay, gypsum, and aggregates), glass (silica sand and feldspar), tile (clay and feldspar), aluminum, and dimension stone.



### Running

Running wear has improved tremendously in recent years—minerals help keep runners safe and keep their laundry hampers smelling a little fresher. Silver is now used in running apparel such as shirts and socks to kill bacteria, and more importantly odour. Zippers are made with chrome-plated zinc teeth. Aluminum is used to make reflective tape and shiny fabric so runners are more visible. Copper is also sometimes incorporated in fabrics and other materials for its antibacterial properties.



### Skiing/Snowboarding

Ski and snowboard bases use aluminum, titanium, carbon fibre, and boron fibre. Bindings are made of steel. Weights of tungsten alloys help steady the ride. Other than steel, the advanced ceramics used in making boots contain composites that include aluminum oxide, clay, hydroxyapatite, lead zirconate titanate, lithium, silica, silicon carbide, tin oxide, titanium dioxide, yttria-stabilized zirconia, and zirconium diboride. Poles have aluminum or carbon-graphite shafts and tungsten carbide tips.



### Curling

The first written record of curling dates back to 1541 in Scotland. Adult curling stones, or "rocks", are expensive, 42-pound stones composed of a unique, dense granite quarried on Ailsa Craig, Scotland. Curling composites of granite and other rocks may be used to create lighter "junior" stones for children and seniors. The molded plastic handle is attached with a steel bolt. The bolt hole is lined with brass (copper and zinc) that may also contain aluminum, lead, manganese, silicon, and tin.

