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Sheila Stenzel, Director  
Kristi Collins, Coordinator

E: [info@MineralsEd.ca](mailto:info@MineralsEd.ca)

P: 604.682.5477

F: 604.682.5477

1230 - 605 Robson St.  
Vancouver, BC V6B 5J3

[www.MineralsEd.ca](http://www.MineralsEd.ca)



## Welcome Back to School!

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We hope you enjoyed your summer and are feeling refreshed for the upcoming school year! We look forward to supporting you as you teach about Earth science, mineral resources, and mining in the year ahead.

As we do every Fall, *MineralsEd* will offer several Pro-D programs for teachers: *Mount Polley Mine Reclamation Field Trip*, a 6<sup>th</sup> annual *Natural Resources in Vancouver Harbour Cruise*, a tour of the *Ashlu Creek Hydro Project*, as well as *inservice workshops* for our Resource Units (Page 2). A career exploration *field trip for secondary students* to *Copper Mountain Mine* near Princeton is also in our calendar for October 25. Read on for details and please share the information with your colleagues.

## We Moved!

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We have had a busy summer moving our office location and preparing for the upcoming school year. Please update our contact information (left) in your files.

## Classroom Workshops

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*Is teaching about rocks and minerals or mining difficult because you lack great samples or background? Besides our Resource Units and workshops for teachers (Page 2), MineralsEd offers student workshops and guest speaker programs that support your units.*

- *Kids & Rocks* classroom workshop for primary students explores the properties of rocks and minerals. Through hands-on enquiry students observe, touch, test, sort and classify, learning through play and developing new Earth Science concepts and vocabulary.



- *Junior Geologist* classroom workshop for intermediate students addresses higher level Grade 4-5 science and socials curriculum: • the rock cycle • rock properties as clues to how they form • BC's mineral resources • minerals and their properties as clues to what they are and how they are used.

Both workshops are half day, mornings only, beginning in October. The cost is \$7/student, minimum \$140/class. For more information and to book a workshop visit our website: <https://tinyurl.com/y8836koe>.

**By teachers, for teachers.**

## MineralsEd Fall Pro-D Events

### FIELD TRIPS

#### Mount Polley Mine Reclamation Field Trip

FRIDAY, SEPTEMBER 27

*MineralsEd* is partnering with **Imperial Metals** to present a reclamation tour for SD 27 teachers of the **Mount Polley Mine**, an open pit copper-gold mine near Williams Lake. First discovered in the late 1960's, this mine produced approximately 19,000,000 lbs of copper and 48,000 ounces of gold in 2017. **Mount Polley** was placed in Care and Maintenance status earlier this year. In 2014 the tailings dam at **Mount Polley** failed, releasing a flood of tailings into Hazeltine Creek and Quesnel Lake. The extensive reclamation work carried out in the 5 years since is the focus of this tour. Teachers will learn about the methods, materials and people involved in reclaiming the landscape and reestablishing habitat, and about the new water treatment plant on site.

Bus transportation from Williams Lake is provided. Registration through Eventbrite: <https://mountpolleyminereclamationtour2019.eventbrite.ca>. Deadline Noon Sept. 20.

#### Natural Resources in Vancouver Harbour Cruise

FRIDAY, OCTOBER 25, PROVINCIAL PRO-D DAY

*MineralsEd* and the **North Shore Waterfront Industrial Association** members are partnering again to offer a boat tour of Vancouver Harbour to learn about Canada's natural resources and the economy. Mineral concentrates, sulphur by-product, potash, wood products, grains and coal that are produced in BC and other parts of Canada, are exported in bulk from the **Port of Vancouver** to markets around the globe. They provide the world with raw materials and drive our economy. This half-day cruise will loop around Burrard Inlet for a close look at many of the terminal operations. Terminal representatives will be on board to share their knowledge and expertise about their operation and the natural resources they handle.

Harbour Cruise Early Bird registration fee \$30 until Oct. 4, and \$40 fee thereafter. Register through Eventbrite: <https://harbourcruise2019.eventbrite.ca> until Oct. 18.

### MINERALSED Workshops in Vancouver October 25, Location TBA

MineralsEd plans to inservice workshops for our comprehensive teaching kits:

#### K-3 Integrated Resource Unit: Kids and Rocks

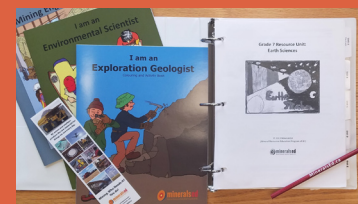
Fun, hands-on activities and lessons build literacy skills while engaging children in the scientific process of enquiry and teaching new content in science, socials, math, art, and other areas. *MineralsEd* partner-teacher Ann Brace introduces this cross-curricular unit built around the theme of rocks. You will be ready to use this resource the very next day.

#### Grade 4-5: BC's Mineral Resources and Mining

Rocks, minerals and mining are woven together in this unit that integrates learning in many subject areas. Students examine mining in the past, present and future. They are introduced to rocks and minerals, the rock cycle, BC's mining communities, how ore deposits are discovered and mined, how minerals and metals are used, mining careers, and mining and the environment. Presented by MineralsEd partner-teacher Andi Eisler.

#### Grade 7-8: Earth Science

This teaching resource provides a collection of engaging and instructive activities and demonstrations to help teach students the fundamentals of geology and to introduce plate tectonics and history of the Earth. Units in the binder address essential topics like minerals, the three types of rocks, structure of Earth, volcanoes and earthquakes, plus unique topics, like BC geology and Famous Rocks (global). Presented by partner-teacher Kerry Lockwood.



## MineralsEd Fall Pro-D Events

## Student Event

### Ashlu Creek, Run of River Hydro Project

FRIDAY, OCTOBER 25, PROVINCIAL PRO-D DAY

In follow up to our Pro-D program at Mineral Exploration Roundup in January, *MineralsEd* is partnering with **Innergex Renewable Energy Inc.** to provide a tour for teachers of their run-of-river (ROR) hydroelectric power generating plant near Squamish.

Run-of-River hydroelectric plants are small scale operations constructed on small, fast flowing rivers. In contrast to familiar hydroelectric dams, they produce energy from moving water without the need to store it in a reservoir behind a dam.

**Innergex** is a Canadian company that develops and operates hydroelectric, wind, and solar energy projects in Canada, the U.S., France, and Chile. **Ashlu Creek** is one of 21 hydroelectric ROR projects operated by **Innergex** in BC; it was commissioned in 2009.

For more information and registration, visit the *MineralsEd* website. Register through Eventbrite: <https://ashlucreekrorhydroelectrictour.eventbrite.ca>. Fee is \$25. Deadline<sup>1</sup>: Oct. 5.

### Copper Mountain Mine Student Field Trip

FRIDAY, OCTOBER 25, PROVINCIAL PRO-D DAY

*MineralsEd* once again partners with **Copper Mountain Mining Corp.** to provide sr. secondary students from Lower Mainland and Princeton area schools to tour their mine near Princeton.

**Copper Mountain Mine** is a very large, open pit operation that employs more than 400 people in a variety of roles from equipment operators and trades, to scientists, engineers and technicians of many stripes, as well as a host of business related roles. The tour provides a great opportunity to learn about the modern mining process and to see how students' career interests may tie into the minerals industry.

Students must be nominated by their teachers to participate. More information about the tour and the registration process are on the *MineralsEd* website. Register through Eventbrite: <https://coppermountainminestudenttour.eventbrite.ca>. Fee: \$20. Deadline<sup>1</sup>: Friday, Oct. 5.

<sup>1</sup> Registration numbers for early deadlines to determine if field trips move forward. If sufficient, registration will stay open until one week before the event pending available spots.

## MINING IN THE NEWS: WHAT DOES MINING HAVE TO DO WITH CLEAN ENERGY?

*Clean energy* refers to renewable forms of energy that do not burn fossil fuels and release CO<sub>2</sub> into the atmosphere. The main new renewables are hydro, solar, and wind.

All of these renewable energy systems require significant amounts of mineral resources to build and operate. Metallurgical coal for making steel turbines. Sand and gravel for concrete dams. Plus, a variety of metals are required for the hardware technology to operate them.

One of the most essential metals is copper (Cu). Its conductivity, ductility, efficiency, and recyclability render it the foundation of our electrified world. The demand for copper will grow as clean energy projects are developed around the world and as electric vehicles become more common place.

In 2017 Canadian mines produced 604,481 tonnes of copper, with BC producing almost half of that amount. They will continue to supply this essential ingredient to the electrified world.

To learn more about the role of copper in the clean energy transition, take a look at [Copper and the Clean Energy Transition](#) from the Copper Development Association.



## Involve Your Students

### Britannia Mine Museum

Britannia Mine Museum offers informative and entertaining guided tours all year round for school groups as part of their finely crafted K-12 educational program. In addition, this year the museum introduced 'BOOM'. This new live-action show brings all 20 storeys of the historic Mill building back to life using physical and special effects that relay the story of the Mill's importance to the community. For more information, and to book a tour, visit their website: <https://www.britanniaminemuseum.ca/>



### The Discovery Centre at the Geological Survey of Canada, Vancouver

Are you looking for a hands-on learning experience for your class? Visit the Discovery Centre at the Geological Survey of Canada office in Vancouver to see an excellent array of rock, mineral, and fossil samples from around BC, an augmented reality sandbox display, to learn about earthquakes and tsunamis, as well as other interactive activities. There is no cost and hours are M-F 8:30-4:30. To plan your visit please email or call Shashi Kapoor at [Shashi.Kapoor@canada.ca](mailto:Shashi.Kapoor@canada.ca) or 604-666-0529.



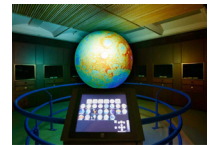
### Yukon Dan Gold Panning in the Classroom

Yukon Dan Moore is a world champion gold panner who presents a one-of-a-kind gold panning workshop in classrooms at all grade levels. Cost: \$7 per student; minimum charge per workshop applies. To arrange a workshop phone or email Dan at 604.948.4941 or [gold@yukondan.com](mailto:gold@yukondan.com)



### Pacific Museum of Earth

Looking for a fun and interactive way for your class to explore the wonders of our dynamic Earth? The Pacific Museum of Earth at UBC has programs for all ages that combine participatory learning experiences with the most current scientific knowledge. To learn more about their programs or to book a visit for your class, follow the link: <https://pme.ubc.ca>



### Port of Vancouver

Port of Vancouver's free school program at their Discovery Centre in Canada Place is designed to support Grades 4-6. Students learn how their lives are connected to the port and observe the working port around Burrard Inlet. To book, call 604.665.9038 or fill out their online form: <https://www.portvancouver.com/community/school-program/>



### H.R. MacMillan Space Centre

The H.R. MacMillan Space Centre in Kitsilano offers a wide array of options for Grade 5 field trips that fit well with MineralsEd's Grade 4/5 Resource Unit. Topics to explore include the rock cycle, machinery, Earth's materials, and sustainability practices. For more information, and to book your class visit, visit their website: <https://www.spacecentre.ca/grade-5-field-trips>



### Travel Subsidies

Travel subsidies are available from MineralsEd for class field trips to geoscience or mining destinations and for Yukon Dan workshops. Complete our subsidy application form or find out more information on our website at: <https://tinyurl.com/ybmtuorx>.

