

Minutes

CGEN Regional Meeting

Friday January 31st 2014, from 10:00 to 4:00
GSC Boardroom, 15th Floor of 605 Robson St, Vancouver

Attendees: Sarah Laxton, Diane Baldwin, Annette Milbradt, Kate Gregory, Marianne Quat, Katie Hikida, John Clague, Shona van Zijl de Jong, Hugh McIsaac, Eileen Vander Flier-Keller

Roundtable Discussion:

1. Communication
 - a. Postcards or bookmarks to advertise the CGEN/Earthlinks websites? Ideal would be a usb stick which has all of the links to Careers website, EdGEO resources, and the WHERE challenge as well. Annette Milbradt already passes along the Careers postcard to teachers in their teacher's packages for ESFS and other teacher and school counsellor events CSEG attends.
 - b. Consider how to make Earthlinks front and centre for educators looking for Earth science resources. Short circuit url?
 - c. There was excellent discussion about how to increase awareness of Earthlinks and Careers websites amongst Canadian teachers.
 - i. Link sites with all provincial and territorial Teacher Association websites. Would need to renew links each year.
 - ii. Educators Breakfasts (Diane Baldwin does this successfully in the NWT)
 - iii. ProD Workshops (e.g. Sarah's in the Yukon)
 - d. Annette Milbradt drew attention to the CSEG Foundation as a potential source of funds for our outreach websites. CGEN will also be putting in an application to CGF in 2014 for website updating, marketing etc.
 - e. Make the Earthlinks site searchable – possibly by grade level, subject areas, location, literacy principles?
 - f. Establish a Facebook page? Shona, Katie, Annette and Eileen will connect on this.
 - g. Wikipedia page?
 - h. Establish a Linked-in CGEN group?
 - i. With any social media there is a need to maintain and engage regularly
 - j. Invite each other to each other's outreach events. This would be an easy thing to accomplish using Facebook. **In the meantime - send Christy upcoming events information so we are aware of what others are doing.**
2. How do we engage new people into Earth science outreach? John Clague brought this up as an important issue to prevent volunteer burnout.
 - a. Shona suggested student internships with formal titles such as social media coordinator. We need to think of ways of engaging kids and educators - "How do you make Earth science sexy?"

- b. Annette with CSEG involves many undergraduate and graduate student volunteers in their many outreach events, with the help of the CSEG outreach co-chairs.
- c. Funds always help. Suggestions were to approach the VanCity Community Fund, Green Economy Funding Group, CSEG Foundation, CGF, APEGBC Funds could be used for internships or to hire Co-op students (co-ops can be part time as well as full time).
- d. In January 2015 we need to have a new CGEN Secretary Treasurer. This position involves most of the communication with CGEN members. Christy Vodden has done an amazing job since CGEN was founded. **Please contact charly.bank@utoronto.ca if you are interested, or know of someone who is.**
- e. Discussed the WHERE Challenge. Need to put the prize information on the site front and centre! Also need judges each year. Annette also noted that high school students she meets are very interested in competing in the WHERE Challenge – make one for older students (CSEG, Yukon, NWT – Annette)

CGEN update:

- Websites
 - CGEN's new webmaster Miriam Vos-Guenter mvosguenter@sd62.bc.ca, is a Victoria teacher from Belmont Secondary
 - CGEN website <http://earthsciencescanada.com/cgen/>
 - Earth science Careers website <http://earthsciencescanada.com/careers/>
 - New Earthlinks website <http://earthsciencescanada.com/earthlinks/> put together by Miriam in consultation with CGEN members, is intended to be a “one stop” provider of the best Internet-based geoscience resources available to Canadian teachers, professionals and interested individuals.

ACTION: please let teachers and educators know about these excellent resources and get in touch with Miriam if you have ideas or resources to add to Earthlinks. There will be an apps section in the future, so keep an eye out for good earth science apps

- CGEN newsletters – you will have received an email requesting that you activate your email subscription to the CGEN newsletter. Once this is done, you will get regular newsletters from CGEN

ACTION: if you have not yet subscribed to the newsletter and wish to, please contact Miriam mvosguenter@sd62.bc.ca and she will get you organised

- New CGEN archive website <http://www.cgenarchive.org> from which we are sending out our email newsletters and where we will host all Geoscape products.
- Geoscape - Marianne Quat has been able to save all of the webpages and images for each Geoscape poster that was hosted on the old GSC website, as well as Geotours, teacher slides, audio tour for the Sea to Sky highway Geotour, Waterscapes, and Climate Change posters. It was requested that she add the Geology of Canada map, permafrost resources, and the fact sheet files. The old website was deleted on account of a lawsuit and replaced by a new, more limited, version which does not include any GSC history or education materials. It

still lists some educational resources in the GSC publications catalogue but will not sell any outreach products in the future.

ACTION: Marianne to continue to collect resources (including the youtube earth science activity demos that she has recorded) and save them as zip files. Anyone having other Geoscape resources please send them to Marianne.quat@nrcan.gc.ca. Once we have a complete list of resources, we will look for the files for any Geoscapes not included, and place all of the important resources on the CGEN archive website. The archive site and Earthlinks need a youtube button. On behalf of the Canadian earth science education community, thanks to Marianne for doing this.

- Canadian Federation of Earth Sciences (CFES) - “The **Mission** of CFES is to be the coordinated voice of the Earth science community in Canada, ensuring that decision makers and the general public understand the contributions of Earth sciences to Canadian society and the Canadian economy”.
CFES/FCST was established in 2006 as the successor to the Canadian Geoscience Council (CGC). CFES is an umbrella organization of 12 Canadian member societies and 2 cooperative groups. Our constituency represents industry (minerals, hydrocarbons, environmental/geotechnical), government (Provincial/Territorial Geological Surveys) and Academia, in total, an estimated 20,000 Canadian earth scientists.
 - CFES Outreach Liaison calls – we are in the process of identifying Member Society outreach representatives who will take part in these quarterly calls. We discussed inviting outreach representatives from Provincial and Territorial geological surveys.
- IGEO “International Geoscience Education Survey” 2013 update
The Canadian information update was compiled by Ollie Bonham and Eileen Van der Flier-Keller and the entire document is available at www.geoscied.org as well as on the CGEN website <http://earthsciencescanada.com/cgen/> under Key Publications.

ACTION: Add the International Geoscience Syllabus and the Literacy Principles documents onto the CGEN and Earthlinks sites

- EdGEO the Earth science Teacher Workshop program is now co-chaired by Beth McLarty Halfkenny (Ontario) and Amanda McCallum (Newfoundland). They intend to restart the EdGEO newsletter this year and note an increasing number of teacher workshops occurring in Quebec. EdGEO has supported 17 workshops so far in 2013/14 – 5 in Ontario, 4 in BC, 2 in Quebec, 2 in Manitoba and one each in Alberta, Nova Scotia, New Brunswick and the Yukon.
Thanks to CSEG Foundation and CGF for their support of EdGEO.
- GAC-MAC 2014 Outreach, Fredericton May 21st-23rd 2014
<http://www.unb.ca/conferences/gacmac2014/>

- Special Sessions “Geoheritage: the Earths past, out future” Friday May 23rd, and “Geoscience Professionalism 2014: Issues, Responsibilities and Information” Abstract deadline is February 17th 2014.
 - EdGEO Teacher Workshop, Saturday May 24th 2014
 - Teacher Fieldtrip to Stonehammer Geopark (the first North American Geopark), Saturday May 25th 2014
- CGF Funding for outreach and education, grant application deadline is March 31st 2014. http://www.canadiangeologicalfoundation.org/?page_id=39
 - The Geological Society of America will be hosting its 2014 Annual Meeting in Vancouver October 19-22 2014.
 - Godfrey Nowlan reports that the 4 Billion Years book on Canadian geology will be published in mid 2014. Look out for this amazing publication.

CGEN Member Reports:

- Kate Gregory, Vancouver – involved with SIS, Grade 4-7, and UBC Museum Tours, Pacific Museum of the Earth
- Shona van Zijll de Jong, Vancouver GSC/UBC Post Doc – risk-based land use planning (Risk scapes and hazards Canada). How do we make science relevant to the public? Shona is working on strategies to communicate science to the public.
- Hugh MacIsaac, Cambridge Bay, Geologist Government of Nunavut
 - Teaches prospecting in 6 communities/year (2013 90 people took Intro to Prospecting). He noted that fewer people are taking advantage of government grant to go prospecting and they seem to be losing prospectors – young people are hard to engage. Could recruit through Hunters and Trappers Association.
 - School visits – use NWT Experiential Science textbook with Aboriginal content
 - Potential to engage teachers in Earth science through the Cambridge Bay teacher meetings or ProD day workshops. NWT provides mineral kits to each high school and colleges, as well as CBC’s Geologic Journey videos and teacher guides.
 - Public talks – several geologists do these. Huge always brings rocks.
- Sarah Laxton, Whitehorse Yukon Geological Survey
 - Working with Charlie Roots and Richard Franklin on a S Yukon highway landscape and geology map. Will be very useful for schools, tourism and visitor info (collaboration with Parks)
 - Geoscience EdGEO teacher workshop with Mining Matters
 - GAC-MAC in 2106 will be in Whitehorse
 - Permafrost Outreach Program – frost tubes in schools and communities. A great citizen science environmental monitoring program
 - Mining Week in Whitehorse – wall tents with activities (EdGEO activities)
 - Collaboration with Dept of Environment for Water Week

- Yukon government Scientist of Practise Community – outreach development Discussion of community landscape mapping project and engaging aboriginal youth.
- Diane Baldwin, NWT Geoscience Office Outreach – **Report is attached**
- Annette Milbradt, CSEG – **Report is attached**
- Katie Hikida, Victoria – Coop position with Eileen Vander Flier-Keller to develop digital educational resources around non-renewable resources (funded by CGF)
- Eileen Van der Flier-Keller, University of Victoria
 - Teacher workshops at Mitchell Odyssey Foundation Symposium 2013, Catalyst 2013 (BC Science Teachers Association)
 - Student teacher workshops for the Faculty of Education at UVic and for students intending to become teachers (Education Lab in our first year Earth science course in the School of Earth and Ocean Sciences)
 - Public presentations – 13 in 2013
 - Classroom visits or fieldtrips (K-12) – 10 in 2013
 - Working with the BC Geological Survey to develop educational resources around non-renewable resources and mining
 - Working with the CRD Sustainability unit – developed a Digging Deeper program for schools to supplement the 3R programs, to engage kids with where their stuff comes from
- Erica Williams was not able to attend but sent the BC 2014 proposed curriculum and comments – **Report is attached**

Thanks to everyone for a great meeting 😊

NORTHWEST TERRITORIES GEOSCIENCE OFFICE OUTREACH PROGRAM – ACTIVITIES FOR 2013-14

*Update for Canadian Geoscience Education Network meeting January 31, 2014.
Submitted by Diane Baldwin.*

1) NTGO Activities include:

Community Visits

- explain upcoming NTGO field activities and/or provide updates from previous field season to communities, aboriginal governments and other organizations. Coordinate with organizations outside NWT (ie. GSC GEM projects).
- outreach geologist and project geologist give presentations in local communities
- Most recent visit done in Fort Simpson with Parks Canada for NTGO petroleum field work in Nahanni Park (Fiess, Baldwin).

Daring Lake Tundra Science and Culture Camp

- Teach basic geology and glacial features to NWT highschool students during a 10-day camp based on the tundra at the Tundra Ecological Research Station, Daring Lake, Northwest Territories. The students also learn about archeology, plant and animal biology, ecology, aboriginal culture and traditional knowledge studies, fish and wildlife management techniques and permafrost and climate change studies.

University of Alberta Field School – Great Slave Lake, NWT

- Edith Martel was the NTGO lead; John Ketchum/Scott Cairns also involved.
- ~2 weeks of field mapping.
- ~6 U of A students plus instructors involved.

NWT Geological Hikes and In-class geologist visits

- Frame Lake trail geological hikes provided by NTGO outreach geologist for teachers and school classes throughout the fall and spring on request.
- NWT teachers conference has booked two geological hikes for fall 2014.
- Organized by request from individual teachers working on school curriculum including rocks and minerals, ice-age mammals, dinosaurs and fossils etc.
- Library lunch-hour program featured 4 geology sessions.

In-house Geological Tours and workshops at NTGO

- Skills Canada Workshops in Geology and Careers for grade 8 girls and grade 8 boys from across the NWT.
- School class tours on request and tailored to topics of interest.
- New acquisitions of fossil dinosaur bones for outreach use.
- Take-a-kid-to-work day mentors in geology.

Yellowknife Geoscience Forum

- Organized the Geoscience Education and Outreach session for November 2013.
- The Geoscience-Education Committee put on two events for students this year. Eight hands-on geoscience activity stations with industry and science mentors were organized for grade 4-5-6 classes. For high school students (and general public), a career-exploration event was organized to introduce students to jobs available in the resource industry, government and service industry by posing questions to selected participants of the tradeshow at Geoscience Forum (~600 students).

Educators Breakfast during Mining Week

- Teachers, career/guidance councilors, trades and technology educators, high-school principals and superintendents are invited to breakfast during Mining Week (June 2013) to sample a smorgasbord of resources to share with their students.

Geoscience Field Assistant Training Program

- Course development is now complete and program delivery and resources are being organized through Aurora College. Spring 2014 offering expected.

Mineral Incentive Program

- Landen Peters (new hire as of Nov 2013).
- Mineral Incentive Program is being re-evaluated to include individual prospectors and companies.
- Program is not funded yet and is currently being sought.

Museum Alive

- Amazing Family Sundays program at the Prince of Wales Northern Heritage Centre was brought alive by community members and museum staff participating in an Open House event for the entire community. Provided exhibit information and tour for a mineral display that shows where each component of a computer comes from and where they are found in the NWT (~500 public attendees).

Canadian Society of Exploration Geophysicists Foundation (CSEGF)

The CSEG Foundation is the charitable arm of the CSEG. It is managed by a Board of Directors, is closely aligned with the CSEG, and boasts a volunteer group in excess of 10% of the entire CSEG membership. Outreach is one of four key initiatives of the CSEG Foundation. These are:

1. The **Canadian Distinguished Lecture**(CDL) Tour is continually expanding and improving, with Don Lawton's tour profiling U of C seismic studies after the Christchurch NZ earthquake travelled to a prodigious 27 locations last year. <http://cseg.ca/technical/view/post-earthquake-seismic-reflection-survey-christchurch-new-zealand>By connecting with our Ambassadors and University Student Outreach Programs we are hosting receptions at a number of lectures and providing information on CSEG membership to students and CSEG members across Canada. This year, Bernd Milkereit from U of T is the CSEG Canadian Distinguished Lecturer. Tour info can be found here: <http://cseg.ca/education/category/lecture-tour>
2. **Scholarships** totalling \$34,000 to 40,000 are awarded each year, primarily to university students in the amount of \$2,000 each. Two new \$1,000 scholarships for technical school students – SAIT, NAIT, BCIT – have been implemented. We've also implemented two \$500 to students (anybody) applying into a Faculty of Science and two to dependents of CSEG members (into any faculty). This year, the application deadline changed to November 1st. Scholarship info can be found here: <http://cseg.ca/students/scholarships>
3. The **Travel Grant & Learning Subsidy** program helps CSEG members to develop their professional geoscience knowledge or skills by supporting educational opportunities. Many post-secondary student members have received funds to travel to national or international Geoscience conferences. Due to the success of this program, the budget was doubled for 2014. Travel Grant & Learning Subsidy info can be found here (scroll down): <http://cseg.ca/foundation/>
4. **Outreach**
 - The **Schools and Public Outreach** program offers information to students, teachers, and career counsellors and the public at schools, career fairs, and events across Canada.
 - **Earth Science for Society** is an annual three day free exhibition with hands-on geoscience activities for the public, junior high school students and GeoConvention delegates.
 - **Seismic in Motion for Students** is a joint CAGC/CSEG program taking high school students to see seismic field operations.
 - In the **Ambassador** program, CSEG volunteers host and coordinate events for Geoscientists across Canada.
 - The **Challenge Bowl** competition for post-secondary students is held each year in Calgary and Atlantic Canada. The Foundation sponsors the Canadian winners' attendance at the International Challenge Bowl final. Canadian teams have done very well at the international competition over the years, coming in 1st in 2012 and 2013!
 - The **University Student Outreach**(USO) program provides training and mentorship opportunities for students, supports post-secondary geoscience conferences, and obtains sponsors to cover student membership fees. USO assisted a record 398 university students in becoming CSEG members. More Outreach details are outlined below.

CSEG Foundation Outreach Committee

Our volunteer base extends over 100 people with a number of key volunteers. The CSEG Foundation Outreach Committee is activity involved in a number of different initiatives. See the 2013-2014 Calendar of Events on the last page.

Public & Schools Outreach

Sponsors several organizations & events: Canmore Museum & Geoscience Centre, EdGEO, WHERE Challenge, CSPG Honorary Address, Earth Science for Society

UPCOMING EVENTS:

Kamloops Education & Career Fair

Prince George Education & Career Fair

Calgary City Teachers' Association Conference

Calgary Education & Career Fair

Ontario Physics Teacher Conference

In-school presentations as requested

Earth Science for Society (ESfS) March 16-18 2014: www.esfscanada.com

We are FULL! for school visits on Monday and Tuesday. Eleven schools with over 1300 students have signed up. Exhibits have a verbal or written commitment from many great exhibitors: Yukon Dan, Burgess Shale, U of C Geoscience, Royal Tyrrell Museum, StraTerra, Alberta Paleontological Society, Canadian Nuclear Society, Ocean Networks Canada, MindFuel, CSEG Outreach, Canmore Museum & Geoscience Centre, Pacific Museum of Earth at UBC, Calgary Waterworks, APEGA, TELUS Spark, Frank Slide. We will also have poster boards and computer kiosks profiling last year's WHERE Challenge winners. New this year is the Geo-Theatre that will have geoscience talks on Sunday, and will be used as the student welcome and briefing area on Monday and Tuesday. The budget is estimated at about \$120,000. Sponsorship is working hard contacting organizations to help fund this event. We are in the midst of a volunteer drive to help fill over 150 shifts. We're doing ok for Saturday and Sunday but are finding the Monday and Tuesday slots harder to fill. The ESfS website is now live with lots of event details.

OFFICIAL BLURB:

The 4th Annual Earth Science for Society Conference will be held March 16-18, 2014 at the Big Four Building, Stampede Park in Calgary. This public outreach event is organized by volunteer geoscientists and is a joint project of APEGA (Association of Professional Engineers and Geoscientists of Alberta), CSEG (Canadian Society of Exploration Geophysicists) and CWLS (Canadian Well Logging Society).

The geoscientists of the Earth Science Society believe that science literacy is essential -every day for everyone. Science literacy helps us to make informed decisions about health, energy, our resources and our earth. One of the goals of Earth Science for Society is to make science literacy an everyday part of life, not something hidden away in a mysterious black box. How do we look at energy projects? What's happening with our Earth resources? How do we balance different science perspectives? Our volunteers are all trained scientists who love their professions and are genuinely enthusiastic about sharing their knowledge with others.

The Exhibition demonstrates the importance of the Earth Sciences in our everyday lives through public speakers and four themed pavilions:

Energy for Us

Resources and You

One Dynamic Earth

Our Future!

This event is open to students and the public. Volunteer guides will be escorting school groups around the exhibit floor. Come and join us for a great event!

Public & Schools Outreach continued

PAST EVENTS:

Career fairs in Saskatoon, Regina, Edmonton

In-school presentations in Calgary, Vancouver and Edmonton

Science Teacher and/or Career Counsellor conferences in BC, Alberta and Ontario

Seismic in Motion for Students:

Seismic in Motion for Students was a huge success. About 180 high school students participated in the one-day trip to the field to view seismic acquisition operations (four busloads!). Corporate sponsors generously donated \$13,500 which covered about two thirds of the cost of sending the students on the field trip.

Students attended a presentation by a CSEG Foundation Outreach volunteer the week before the field trip.

NEW INITIATIVE:

One of our primary goals for 2014 is to extend our research and information output into digital media thereby making it available to the general public and teachers. This includes digital teachers' (educators') packages containing links to resources, classroom presentations and concept demonstrations, as well as an online database which can be accessed from the CSEG website.

University Student Outreach (USO)

Has successfully paired close to 50 Mentees with Mentors

Sponsors conferences: WIUGC, AUGC, CUPC, AESRC, GeoSkills, U of C Talk Series

UPCOMING EVENTS:

In upcoming months USO will support the AAPG Imperial Barrel Award

Will attend the Advances in Earth Sciences Research Conference (AESRC) in Ottawa

Will attend the Alberta Student Energy Conference (ASEC)

Planning is underway for the Geophysical Industry Field Trip (GIFT) June 6-8th

This is a three day training session. The first two days cover seismic data acquisition and planning, processing and interpretation, hosted by different organizations in Calgary. The third day takes place in Canmore with a visit to the Canmore Museum and Geoscience Centre and a geology hike.

PAST EVENTS:

Western Inter-Universities Geo Science Conference (WIUGC) 50th Anniversary

Atlantic Universities Geoscience Conference (AUGC)

Canadian Undergraduate Physics Conference (CUPC)

Calendar of Events

EVENT DATE	EVENT 2013-2014	LOCATION
Sep 24	U of C Science & Engineering Fair [10-4, shifts 9:30-1 & 1-4:15]	Calgary
Sep 25	U of A Careers Day	Edmonton
Sept 24 th 2013	Ernest Manning High School (SIMfS presentation)	Calgary
Sept 25 th 2013	Centennial High School (SIMfS presentation)	Calgary
Sept 25 th 2013	Lord Shaughnessy High School (SIMfS presentation)	Calgary
Sept 26 th 2013	James Fowler High School (SIMfS presentation)	Calgary
Sep 30	U of C Talk Series Amanda Knowles	Calgary
Oct 1-3	Seismic in Motion for Students	Waiparous
Oct 4-5	AB Employment & Career Fair [formerly Canada Career Week]	Edmonton
October 10	CSEG Foundation Fall Reception	Calgary
October 15	U of C Talk Series David Gray	Calgary
October 16	Interview Skills Workshop	Calgary
October 17	CDL Event University of Ottawa and Carleton University	Ottawa
October 18	CDL event, Laurentian University & CEMI	Sdbury
October 19	Canmore Rock Clinic	Canmore
Oct 17-20	CUPC – Canadian Undergraduate Physics Conference	Hamilton
Oct 24-26	AUGC – Atlantic Universities Geoscience Conference	Antigonish
Oct 24-25	BCScTA – BC Science Teachers Association Catalyst 2013	Richmond, BC
October 28	U of C Talk Series Paige Snelling	Calgary
Nov 4, 5	See Your Future	Saskatoon & Regina
Nov 12	U of C Talk Series Todd Brown	Calgary
Nov 10-12	OSCA (Ontario School Counselors Association) Conference	Toronto
Nov 14	CDL and Ambassador event UBC	Vancouver
Nov 14-16	STAO – Science Teachers' Association of Ontario	Toronto
Nov 14-16	ATA – Alberta Teachers Association Science Council Conference	Edmonton
Nov 19	CDL and Ambassador event U of A	Edmonton
Nov 21	CDL event Lakehead University	Thunder Bay
Nov 22	CDL and Ambassador event UWO	London
	U of C Talk Series Juan Joffre	Calgary
Dec 6	Education and Career Fairs	Vancouver
Dec 9	U of C Talk Series Natalia Verkhovtseva	Calgary
January 2-5	WIUGC - Western Inter-Universities Geoscience Conference	Calgary
Jan 24	CDL event Queen's University	Kingston
Jan 30	Human Library at John Oliver Secondary School	Vancouver
Jan 31	CDL event U of S	Saskatoon
Feb 4	CDL event U Vic	Victoria
Cancelled	Geoskills	Calgary
Feb 5	Education and Career Fairs	Kamloops
Feb 7	Education and Career Fairs	Prince George
Feb 13-14	CCTA- Calgary City Teachers Association Convention (2014)	Calgary
March 13	Education and Career Fairs	Calgary
Mar 14	Alberta Student Energy Conference	Calgary
Mar 16-18	Earth Science for Society [Big Four Exhibit Hall B]	Calgary
Mar 26	CDL event UNB	Fredericton
Mar 27	CDL event Dalhousie University	Halifax
Mar 28	Advances in Earth Science Research Conference (AESRC)	Ottawa
Mar 28	CDL event Memorial	St. John's
April 10	"I-cubed" at Tom Baines School	Calgary
April 28	CDL CSEG Luncheon	Calgary
May 8-10	Ontario Association of Physics Teachers	Toronto
May 24	Geoscience Day at Canmore Museum & Geoscience Centre	Canmore

Erica Williams comments for CGEN Regional Meeting January 31st 2014

I am not sure if I sent you the attachment showing the earth-space component of the proposed curriculum. I think most of it is a waste of time in that it is getting more and more abstract at lower grade levels. The tectonics is currently in G 10 and they struggle so why push down to G 8. The proposed G 9 is currently part of Sc. 10. Nowhere do I see anything that is appropriate for the age level, and considering most teachers, particularly at the K-7 level know very little Earth Sc. anyway we are not going to change unless there is input from external agencies. Even then they are battling embedded belief systems that date back to the early 20th century. We are doing nothing to embed our connectiveness to the land in such ways as resources (how we turn earth materials into useful products), food supply, hazards, climate change for example.

After 44 years of fighting for Earth Science education in BC and given countless workshops I will be retiring in June - I will be 71 in a few weeks, so may have more flexibility - who knows. As I am still an employee of SD43 I do have to be somewhat circumspect in terms of my public face.

Rather than large all-day workshops with big boxes of freebies which we have been seeing at GAC-MAC in recent years, I think it might be more productive to have a series of small workshops, giving out smaller resources each time. This would encourage people to try the ideas, then for the first part of the next workshop reflect and discuss what worked and what didn't. The second half of each workshop would then introduce a new topic etc. An overriding theme for a series might be making those Earth connections.

Over the last couple of years I have been teaching Science and Tech and have developed a unit that looks at the processes of mining, through smelting, refining, and then primary and secondary fabrication to common finished products. The final assessment is primarily a deconstruction activity and report in which each student picks a specimen from my box of odds and ends, e.g. a bathroom tap. The task is to start with that object (the tap) and deconstruct the processes by which it was made back to the specific ores involved - for example the tap is a zinc casting that is chrome plated. It is a challenging project but those that get into it come away with a whole new respect for mining and manufacturing.

The new person who will be taking over the Earth science/Geology at Riverside is quite experienced and will end up with a tremendous package of resources.

I am not going to be able to go to Fredericton this year as it would require too much time off and budgets are tighter each year.

I am sorry I cannot be at the meeting. Pass any of this along if you think it might be useful.

Erica

BC 2014 Proposed Curriculum Document

K

Earth Science:

_Daily and seasonal changes in the place we live effects our daily life

Daily changes in the weather, where we live, related to temperature (e.g. cold, hot, warm, cool); cloud cover (e.g. cloudy, partly cloudy, foggy) precipitation (e.g. rain, snow,

G.1

Earth and Space Science

Observable patterns and cycles occur in the sky and landscape

Common objects in the sky, such as the sun and the moon, are important in local Aboriginal culture and other cultures

There are local patterns of events that occur on the earth and sky, such as the appearance of the moon and stars at night, the weather and seasons

Local weather is related to the four seasons in terms of temperature, cloud cover, precipitation and wind

G.2

Earth Science:

Wind and water change the shape of the land

The major landforms of the surface of the Earth in their area (e.g. mountains, plains, plateaus, valleys, hills)

Examples of erosion by wind and water in their area

G.3

Earth Science:

Water is an important resource that cycles through the environment

• Local water sources (e.g. wells, springs, lakes, rivers, ocean)

The water cycle in the context of your local area: **evaporation, condensation, precipitation and run off**

The majority of fresh water is stored underground and in glaciers and is not being replaced at the same rate that it is being used

G. 4

Earth Science:

Rocks, minerals and soils are formed by processes that occur over a variety of time scales

• The different types of earth materials in their local area (e.g. mineral, rock, clay, boulder, gravel, sand, soil)

The rock cycle

Rocks are made up of minerals formed in the rock cycle

Soil is a mixture, made up of weathered rock and decomposed organic material

G. 5

Earth and Space Science:

_The Earth's rotation and orbit around the sun, and the orbit of the moon around the Earth cause observable patterns

• _The rotation of the Earth causes day and night

_The revolution of the Earth around the sun

defines a year and the seasons

_The movement of the moon around the Earth results in phases of the moon and tides

_Local Aboriginal teachings and stories about the sun and moon

G. 6

Space Science:

_The solar system contains many varied objects and is part of the Milky Way, which is one of billions of galaxies

• _The position and motion of our solar system in our galaxy and the overall scale, structure, and age of the universe

_Components in our solar system, such as other planets, asteroids, meteors and comets

G. 7 Earth Science:

_Fossil records provide evidence of geologic and environmental change

• _The difference between life forms found in fossils and organisms that exist today

_The fossil record and geological dating demonstrates the cyclic nature of change on the planet (e.g. ice ages, mass extinctions)

G. 8 Earth Science:

The theory of plate tectonics is the unifying theory that explains earth's geologic processes

• _Plate tectonic movement and how the lithospheric plates move centimeters each year.

_Major geological events (earthquakes, volcanic eruptions, mountain building) result from these plate motions and shape our local environment.

_Layers of the Earth as a lithosphere (crust and upper mantle), convecting mantle, and dense metallic core.

_The three major types of volcanoes (shield volcano, stratovolcano, and cinder cones) and their relationship to the Ring of Fire.

G. 9 Earth Science:

Matter cycles between the lithosphere, atmosphere, biosphere and hydrosphere and these cycles are affected by human activities

• _Carbon exists in different forms such as limestone (rock), carbon dioxide (gas), carbonic acid (water), and animals (life) within Earth systems and how those forms can be beneficial or harmful to humans

Small amounts of some chemical forms may be beneficial for life but are poisonous in large quantities (e.g. fluoride in drinking water)

G. 10

Earth and Space Science:

_The formation of the universe can be explained by the Big Bang Theory

_The nitrogen cycle is part of the Earth system

_Carbon moves through the Earth system (including the geosphere) and how it sustains (e.g. improve soils for sustaining plant growth) or harms (e.g. act as a pollutant) the environment

_The impact of human activities on the environment (e.g. deforestation, air pollution, coral reef destruction) can be understood through the analysis of interactions between the four Earth systems

- _Evidence for the current Big Bang theory
 - Observations of the cosmic microwave background have helped determine the age of the universe
 - Red and blue shifts provide information about the movement of objects in the universe
- _Nuclear fusion produces energy in stars
- _Nuclear fusion and other processes in stars have led to the formation of all the other chemical elements