

SYSTEMIC CONNECTIONS



January 18, 2012 Volume 18

This is an STEM information exchange that is available to all teachers in the Anchorage School District

CALENDAR - STEM EVENTS 2011-2012

January 21	Lego League Statewide Invitational Championship SAHS, Anchorage
February 4	Lego League Statewide Open Championship Ryan Middle School, Fairbanks
February 4	Women of Science & Technology Day - presented by Girl Scouts @ UAA
February 10-11	FIRST Tech Anchorage Qualifier SAHS Anchorage
February 25-28	ASTE 2012: Create~Collaborate~Innovate
Feb 28-Mar 2	Iditarod Winter Conference for Educators
March 2-3	Statewide Championship Patty Center, UAF Sponsored
March 3	First Use Science Kit Training (K-6)
March 23-25	AK Science & Engineering Fair - Begich MS
March 29 - April 1	NSTA - Indianapolis, IN
March 31	Science Olympiad - UAA Campus
April 24- May 5	Math Derby
May 8-11, 2012	CCSC - Outdoor Week (Grade 6)
May 8-11, 2012	Outdoor Week
June 24-28, 2012	Nat'l Marine Educators Conference Anchorage

STEM Web Page Highlights

Objectives & Initiatives for 2011 – 2012

<http://www.asdk12.org/depts/STEM/objectives.asp>

Links to local STEM programs –

Campbell Creek Science Center, Imaginarium, UAA Planetarium, Alaska Zoo. <http://www.asdk12.org/depts/STEM/>

Please read and then TRY some of these!

- 1. Applications Now Available for the Girls on Ice 2012 Expeditions**
- 2. Northwestern University Materials Research Science and Engineering Center's Research Experience for Teachers**
- 3. Future Science Opportunities in Antarctica and the Southern Ocean Report**
- 4. NEON - NASA Educators Online Network**

- 5. The Futures Channel: Weekly Newsletter**
- 6. Polar Education List : High School Student Opportunity! Joint Science Education Project in Greenland**
- 7. T3 2012 International Conference's**
- 8. from LPI Earth and Space Science Newsletter**
- 9. Project Wild Winter Workshop Flyer**
- 10. Anchorage Robot Rendezvous Flyer**
- 11. Winter Workshops at the Alaska Botanical Garden**
- 12. More Stars. Less light. Participate in GLOBE at Night!**
- 13. Polar Science Weekend at the Pacific Science Center**

CHECK OUT THESE SITES:

Critical Past

<http://www.criticalpast.com/>

Astronomy Links

<http://www.space.com/14085-12-amazing-skywatching-events-2012.html>

<http://www.space.com/14092-quadrantid-meteor-shower-peaks-january-4.html>

Gizmos - costs \$\$ - but good resource

<http://www.explorelarning.com/>

Applications Now Available for the Girls on Ice 2012 Expeditions!

Girls on Ice is a unique, FREE, wilderness science education program for high school girls. Each year a team of 9 teenage girls and 3 instructors spend 11 days exploring and learning about mountain glaciers and alpine landscapes through scientific field studies with professional glaciologists and mountaineers.

This year 2 expeditions are being offered:

Girls on Ice NORTH CASCADES is the original expedition in Washington State. Open to all girls age 15-18 (yes, international girls can apply!) The dates are July 29 to August 9, 2012

Girls on Ice ALASKA is a new expedition, geared toward Alaskan and Pacific Northwest girls. The dates are July 15-25.

Applications are due March 1, 2012

This program is offered TUITION FREE to the girls through small grants, gifts from individuals, and generous support from the National Science Foundation and the University of Alaska Fairbanks.

<http://girlsonice.org> <<http://girlsonice.org/>>

Northwestern University Materials Research Science and Engineering Center's Research Experience for Teachers

An exciting summer development opportunity-Northwestern University Materials Research Science and Engineering Center's Research Experience for Teachers. Science teachers are invited to participate in eight weeks of laboratory research with some of Northwestern's leading scientists. Research topics include a wide range of materials science, physics and chemistry areas such as

ceramics, nanocomposites, photonics, nanoparticles, and molecular electronics. The program runs from June 18 through August 10, 2012 and carries an \$8,500 stipend. At the end of the eight weeks, the participants not only write a technical paper based on their research, but also develop a curriculum project that they can use in their classrooms. K-12 teachers who have a bachelor's degree in science or engineering are eligible; no prior research experience is necessary. Participants are eligible to receive graduate credits through the National Louis University. The application deadline is March 15, 2012.

<http://www.mrsec.northwestern.edu/content/educational>
<<http://www.mrsec.northwestern.edu/content/educational>
> [programs/ret.htm](http://www.mrsec.northwestern.edu/content/educational)

Future Science Opportunities in Antarctica and the Southern Ocean Report

The National Academies are pleased to announce the availability of a new National Research Council report entitled "Future Science Opportunities in Antarctica and the Southern Ocean" published under the guidance of the Polar Research Board of the National Academy of Sciences,

Antarctica and the surrounding Southern Ocean remains one of the world's last frontiers. Covering nearly 14 million kilometers, Antarctica is the coldest, driest, highest, and windiest continent on Earth. While it is challenging to live and work in this extreme environment, the region offers many opportunities for scientific research. Substantial resources are needed to establish and maintain the infrastructure needed to provide heat, light, transportation, and drinking water, while at the same time minimizing pollution of the environment and ensuring the safety of researchers.

"Future Science Opportunities in Antarctica and the Southern Ocean" suggests actions for the United States to achieve success for the next generation of Antarctic and Southern Ocean science. The report highlights important areas of research by encapsulating each into a single, overarching question. The questions fall into two broad themes: those related to global change, and those related to fundamental discoveries. In addition, the report identified key science questions that will drive research in Antarctica and the Southern Ocean in coming decades, and highlighted opportunities to be leveraged to sustain and improve U.S. research efforts in the region.

http://www.nap.edu/catalog.php?record_id=13169
<http://www.nap.edu/catalog.php?record_id=13169> .

NEON - NASA Educators Online Network NASA's Aquarius Studies Our Salty Seas

Free Educator Webinar Series: January 17 & 24

In January, you are invited to attend a two-part NASA webinar series on the Aquarius/SAC-D Satellite and the science behind what it takes to measure the salinity of the

world's oceans. NASA scientists Yi Chao, Gary Lagerloef, and David Le Vine will discuss the complexities of getting accurate salinity measurements from space, and will share the most recent data collected by the satellite. As part of each interactive webinar, attendees will have an opportunity to participate in a live question and answer session with the presenting scientists. The concept map-based webinars will also provide participants with a rich collection of educational resources relating to Aquarius, salinity and technology.

Register Now! long url:

<http://www.surveymonkey.com/s/aquariusdata>

The Futures Channel: Weekly Newsletter Solar Energy: What is Photovoltaic and How Does it Work?

Photovoltaic cells convert energy from the sun directly into electricity. In this movie, engineers Beth Richards and Miguel Contreras give your students a clear and engaging "101" on this renewable energy technology, and demonstrate the basic math and science behind it.

Watch the movie and download the classroom activity here:

http://www.thefutureschannel.com/dockets/science_technology/solar_power

Also Playing

The Collaboration Between Design and Engineering

http://www.thefutureschannel.com/dockets/insights/collab_design_engineering/index.php

Life Under the Ocean

http://www.thefutureschannel.com/dockets/realworld/life_under_the_ocean/index.php

Statistics in Farming

http://www.thefutureschannel.com/dockets/realworld/stats_farming/index.php

Water Supply

http://www.thefutureschannel.com/dockets/hands-on_mah/water_supply/index.php

Polar Education List : High School Student Opportunity! Joint Science Education Project in Greenland

High School Students are invited to apply today for the Joint Science Education Project - a summer research experience in Greenland. A limited number of high school students from the United States will join their peers from Denmark, and Greenland to spend three weeks this summer

doing field science in and around Kangerlussuaq, Greenland and visit a research station on the Greenland ice sheet. Students work with Arctic scientists and with their peers on research projects in a wide variety of

fields including biology, geology, climatology, chemistry and engineering.

This program is sponsored by the National Science Foundation's Office of Polar Programs in collaboration with the Joint Committee.

Applications are due Feb 17, 2012.

More information, including the application, can be found on the website

at: <http://www.arcus.org/jsep>

Contact Shelly Hynes <shynes@nsf.gov> for more information.

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T3 2012 International Conference's

400+ sessions are posted online for you to view now!

<http://education.ti.com/calculators/pd/US/International/2012/>

from LPI Earth and Space Science Newsletter

Mars Education Challenge

Science teachers of grades 7-12 are invited to enter the Mars Education Challenge and develop ingenious ways to incorporate Mars science and exploration into the classroom. The grand-prize winner receives \$5,000, a trip to the NSTA National Conference on Science Education in Indianapolis, and a chance to do field research with a well-known NASA scientist. Entries due January 16, 2012.

<http://www.exploremars.org/mec2012/>

Summer Research Experience for Teachers

The National Solar Observatory seeks middle and high school teachers of science and mathematics who would be interested in participating in the Summer 2012 NSO Research Experience for Teachers (RET) Program.

<http://eo.nso.edu/ret/>

Astronomy Apps

Astronomy Education Review has published an overview of 98 astronomy applications for smart phones and tablets. Compiled by Andrew Fraknoi, the list features a brief description and a direct URL for each app.

http://aer.aas.org/resource/1/aerscz/v10/i1/p010302_s1

Surfin' the Solar Wind website for Teens

This new website enlists local high school students to design and bring engaging Sun-based activities and multimedia to other teenagers.

A Project WILD/Alaska Wildlife Curriculum Workshop for K-6 Educators
January 20-21, JBER Wildlife Museum

Wildlife in Winter: Animal Adaptations for Northern Ecosystems

Have fun! Connect students with nature!



1 UAA continuing education credit available!

- Connect your students with the outdoors.
- Complements the ASD Alaskan Animals, Weather and Ecosystems units.
- Learn new content and take home curriculum and resource materials.
- Content areas: Science, math, reading, writing, art, physical education, music and more!
- Engage students with tracking, field investigations of their schoolyard and other hands-on lessons!

When: Friday and Saturday Jan. 20-21 (4-9 p.m. on Friday night & 9 a.m. - 5 p.m. on Saturday)

Where: JBER Wildlife Museum, Joint Base Elmendorf-Richardson, Anchorage, Alaska (We will send information to registered participants about how to get on base for those who don't already have base access).

Fee: \$99 credit fee (1 continuing education credit through UAA); \$20 materials fee per teacher's guide. The materials fee provides you with take-home books and materials. If you do not wish to take the class for credit, you will be charged only a materials fee.

Sponsored by: The Alaska Department of Fish and Game and JBER's Wildlife Education Center.

Pre-registration is required: Please reserve your space in this class by emailing elizabeth.manning@alaska.gov, calling 267-2168 or signing up on ASD's "My Learning Plan". Class is limited to 25 so please register soon!

This workshop introduces the national, award-winning environmental education programs Alaska Wildlife Curriculum and Project WILD designed to assist PreK-12 students in developing awareness, knowledge and skills needed to make informed decision about the environment. The focus of this workshop for PreK-elementary teachers will be on winter ecology and survival strategies of northern animals.



COME CHEER ON THE ROBOTS!



ANCHORAGE ROBOT RENDEZVOUS

Saturday, January 21, 2012 9:00 AM - 5:00 PM South High School
Spectators Encouraged! Catch the best robot action from 12:30-3:00 PM.

STATE CHAMPIONSHIP FIRST LEGO LEAGUE TOURNAMENT

Join nearly 50 teams from Anchorage, Chefnak, Metlakatla and more for this exciting event! The FIRST LEGO League is a "sport for the mind" that introduces elementary and middle school students to real-world engineering challenges by building LEGO-based robots to complete tasks on a thematic playing surface. FLL teams, guided by their imaginations and adult coaches, discover exciting career possibilities and, through the process, learn to make positive contributions to society.

What FLL teams accomplish is nothing short of amazing!

It's fun. It's exciting. And the skills they learn will last a lifetime.



<http://www.teensolarinvestigators.org/surfin>

Winter Workshops at the Alaska Botanical Garden

<http://www.alaskabg.org>

All classes held at Bell's Nursery, Specking Ave.
2:30pm - 4:00pm Saturdays

January 21- Plant the Pits!

Plant your kitchen scraps
Patrick Ryan, instructor

January 28 - Terrariums

Great class for kids too
Patrick Ryan, instructor

February 4 Seed Starting

Get a jump on Spring
ABG staff

February 11 Tabletop Gardening

Make a miniature garden
Carmel Tysver, instructor

February 18 Vermiculture

Composting with worms
ABG Staff

February 25 Houseplant Care

ABG staff/Bell's Nursery staff

More Stars. Less light. Participate in GLOBE at Night!

Calling all Earthlings! Take a few minutes to get involved in the GLOBE at Night campaign to preserve dark skies! GLOBE at Night is a citizen-science campaign open to people all over the world to raise awareness of the impact of light pollution by inviting citizen-scientists to measure their night sky brightness and report their observations to a website from a computer or smart phone. Light pollution threatens not only our "right to starlight", but can affect energy consumption, wildlife and health. Through 2011, people in 115 countries contributed 66,000 measurements, making GLOBE at Night one of the most successful light pollution awareness campaigns to date. Please join us to participate in the 2012 campaign an hour after sunset til about 10pm January 14 through 23, February 12 through 21, March 13 through 22, and April 11 through 20. For information and resources, visit us at www.globeatnight.org
<<http://www.globeatnight.org>> .

Polar Science Weekend at the Pacific Science Center

Polar Science Weekend at the Pacific Science Center in Seattle, Wash., is taking place **March 1-4, 2012**. The event is four days of hands-on activities, live

demonstrations and exhibits presented by scientists who work in some of the most remote and challenging places on Earth. Learn about ice sheets and sea ice, polar bears and penguins, scientific instruments and polar expeditions.

Polar Science Weekend highlights NASA-funded work in the polar regions, and is supported by a grant from NASA's Science Mission Directorate.

For more information, visit <http://psc.apl.washington.edu/wordpress/education/polar-science-weekend/>. Questions about this event should be directed to psw@apl.washington.edu.
