

SYSTEMIC CONNECTIONS



AUGUST 30, 2010 VOLUME 1

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

Please read and then TRY some of these!

In this Issue:

1. RealWorld-InWorld NASA Engineering Design Challenge
2. from Earth Science Week Update - AGI July 2010
3. Rodney's Homepage for EARTH SCIENCE TEACHERS - resource
4. NASA Website Aims to Engage and Educate Advanced High School Students
5. 2010 Cassini Scientist for a Day Essay Contest
6. World Water Monitoring Day
7. Flinn Scientific
8. NASA's 2nd Waste Limitation Management and Recycling Design Challenge
9. New Resource Available from Understanding Science
10. Monthly Web Seminars Show K-5 Teachers How to Integrate Science and Literacy Instruction
11. NBC's "Education Nation" Series
12. National Park Foundation Offers electronic Field Trip
13. What is Landscape Architecture?
14. from ANROE eNewsletter
15. Observe the Moon Night - September 18, 2010
16. Registration for NASA Explorer School Project
17. Final Flight of the Space Shuttle: A Remarkable Grade 5-12 Opportunity for Student Experiments
18. Grant Opportunity: K-12 Environmental Literacy
19. Waste Limitation Management and Recycling Design Challenge
20. Free Webcast: Our Solar System AnInquiry Tour

RealWorld-InWorld NASA Engineering Design Challenge

The RealWorld-InWorld NASA Engineering Design Challenge invites high school students to work cooperatively as engineers and scientists to solve real-world problems related to the James Webb Space Telescope.

In Phase 1 of this education initiative, students explore and design solutions to two real-world problems

related to the James Webb Space Telescope. For this phase, participants work in teams of three-to-five students.

Final RealWorld project solutions from this first phase of the challenge are due on **Dec. 15, 2010**.

Teams who complete Phase 1 are then paired with participating college engineering students to begin Phase 2, the InWorld phase of the challenge. Working in a virtual world setting, each newly formed InWorld team uses 21st-century tools to refine designs and create 3-D models of the Webb telescope.

For more information about the challenge, visit <http://www.nasarealworldinworld.org/>.

Questions about this opportunity should be directed to RWIW@nianet.org.

from EARTH SCIENCE WEEK UPDATE

American Geological Institute Vol. 8, No. 7: July 2010

Kick Off the Fun on International EarthCache Day

Earth Science Week begins again this year with International EarthCache Day on Sunday, Oct. 10, 2010. Whether you're a teacher, a student, or just someone who enjoys Earth science firsthand, EarthCaching provides a great way to kick off the celebration.

EarthCaching is a variation of a recreational activity known as geocaching. Typically a geocache organizer posts latitude and longitude coordinates on the Internet to advertise a "cache," or scavenger-hunt destination, which geocachers locate by using GPS devices. Today, hundreds of thousands of caches have been prepared in over 200 countries, according to Geocaching.com. The activity has attracted over a million participants worldwide.

EarthCachers have added an educational dimension. When you visit an EarthCache, you learn something special about Earth science, the geology of the location, or how the Earth's resources and environment are managed there. EarthCaching has been developed by the Geological Society of America - a major Earth Science Week partner - along with Groundspeak, Inc., and the geocaching community. You are invited visit or establish an EarthCache in your area on International EarthCache Day (10/10/10). To learn more, visit <http://www.earthcache.org>.

Find New Resources at National Fossil Day Online

To help you prepare for the first annual National Fossil Day (October 13) during Earth Science Week 2010, the National Park Service recently launched a new website full of educational resources and information designed specifically for students and teachers (<http://nature.nps.gov/geology/nationalfossilday/>).

On the site's NPS Fossil Park Highlights page, for example, you'll find lesson plans developed to reflect select state standards, fossil trading cards, videos about pygmy mammoths, special brochures, a virtual museum

exhibit on dinosaurs, and more. Check out the page at http://nature.nps.gov/geology/nationalfossilday/park_highlights.cfm.

AIPG Aims to Educate Next-Generation Geologists

The American Institute of Professional Geologists (AIPG), an AGI member society, was founded to advocate for geologists and certify their credentials. Today AIPG is reaching out to Earth science students and educators.

Available online for free download, AIPG offers several PowerPoint presentations presenting relevant career information for young, newly graduated geoscientists. These presentations also enable K-12 teachers to convey what geoscientists do for a living.

Students who become AIPG members can establish professional contacts, attend meetings and field trips, receive mentoring from professionals and potential employers, access undergraduate scholarships, tap resources on careers in geology, and submit papers to the journal "The Professional Geologist." To learn more, visit <http://www.aipg.org>.

View 'Why Earth Science' Online With Your Students

AGI's "Why Earth Science" video is now available for free viewing online on YouTube and TeacherTube. For an exciting introduction to the geosciences, you can't do better than this six-minute clip, featuring eye-popping cinematography and computer-animation highlights from AGI's "Faces of Earth" mini-series, which aired recently on The Science Channel.

The video, which recently won a Silver Telly Award, is ideal for illustrating the importance of Earth science to not only students, but also education decision-makers who may be weighing the subject's place in the local curriculum. To view the clip on YouTube, go to <http://www.youtube.com/watch?v=jxbIJH4fTYo>, or on TeacherTube, go to http://www.teachertube.com/viewVideo.php?video_id=47669.

Don't Delay: Order Your Earth Science Week Toolkit

Earth Science Week 2010 Toolkits are available now! The kit contains everything you need to prepare for Earth Science Week (October 10-16, 2010), which celebrates the theme "Exploring Energy."

To ensure that you are among the first to receive these exciting educational resources, order yours today. The Earth Science Week 2010 Toolkit includes:

- * 12-month school-year activity calendar, suitable for hanging
- * New Earth Science Week poster, including an energy activity
- * USGS energy resources, including a booklet and online info

- * "What You Need to Know About Energy" booklet by NAS
- * National Park Service poster on fossils nationwide
- * NASA energy resources, including a flyer on climate interactions
- * Environmental science material from the Energy Department
- * "Energy Sources of the World" poster by SPE
- * Bookmark pointing to GIS education online from ESRI
- * Genuine field notebook from Rite in the Rain
- * "Energy Outlook" brochure from ExxonMobil
- * Educational material from the U.S. Fish and Wildlife Service
- * Activity sheets from the Association for Women Geoscientists
- * Brochures, bookmarks, fact sheets, postcards, and more

For ordering, special shipping, bulk orders, and more information, visit

<http://www.earthsciweek.org/materials/index.html>.

Rodney's Homepage for EARTH SCIENCE Teachers

A wealth of information at your fingertips - check out this website www.formontana.net/home.html.

NASA Website Aims to Engage and Educate Advanced High School Students

Advanced students require challenging materials to keep them focused on their studies and to help provide them insight into the limitless array of options in science, technology, engineering and mathematics, or STEM, fields.

NASA's Math and Science @ Work project offers challenging supplemental problems based on space exploration topics. This project engages students by providing real-world applications to promote critical thinking and problem-solving while exposing students to careers in space exploration.

These problems are for high school students in advanced classes, grades 10-12, and are formatted in a free-response style. Problems are available for calculus, physics, biology, chemistry, U.S. history and human geography.

Visit the Math and Science @ Work website at www.nasa.gov/education/mathandscience.

Questions about the Math and Science @ Work website should be e-mailed to Natalee Lloyd at natalee.d.lloyd@nasa.gov.

2010 Cassini Scientist for a Day Essay Contest Due Oct. 27, 2010

The Cassini Scientist for a Day contest challenges students to become NASA scientists studying Saturn. Participants examine three possible observations taken by Cassini and choose the one they think will yield the best scientific results. This choice must then be supported in a

500-word essay. Teaming up is encouraged. Winners will participate in a teleconference with Cassini scientists.

The contest is open to all students in the United States from grades 5-12, working alone or in groups of up to four students. The essays will be divided into three groups: grades 5-6, 7-8 and 9-12. All submissions must be students' original work. Each student can submit only one entry.

Deadline for Fall 2010 submissions is **noon Pacific time (3 p.m. EDT) on Oct. 27, 2010.**

For more information, visit <http://saturn.jpl.nasa.gov/scientistforaday/>. If you have questions about this contest, please e-mail your inquiries to scientistforaday@jpl.nasa.gov.

World Water Monitoring Day

<http://www.worldwatermonitoringday.org/>

Flinn Scientific

Welcome Back to School! Here are two free activities, compliments of Flinn Scientific, to share with your middle school students.

Teachers love receiving these free activities every month, and you will too! Enthusiastic comments from a recent customer include:

"Thanks so much for the free e-mail activities again this year. Students love them and so do I! I really appreciate Flinn's extra-quick and affordable ideas that work!"

To continue receiving these free activities every month by e-mail, simply place any size order with Flinn--no minimum order required. Don't miss out on the great free lab ideas to come, ideas like this month's life science and physical science activities:

The life science activity, "Oil Spill Cleanup" simulates on a small scale, the difficulties of cleaning up the real thing--which unfortunately, is a real problem in the Gulf of Mexico.

The physical science activity, "Classifying Matter" is perfect for introducing the topic of elements, compounds, and mixtures. Use this "nuts and bolts" demonstration to help students visualize abstract concepts relating to the classification of matter.

The beginning of the school year is a great time to start fresh--to add new, engaging activities to your lesson plan and to discover more efficient ways to succeed at teaching science. If you are in the old habit of buying some of your supplies from other companies, and you think all companies are the same, it's time for a change. Flinn Scientific is different! Order from Flinn, the #1 Preferred Science Supplier. You will always receive superior service, fast delivery, and quality products at low prices.

To print "Oil Spill Cleanup" and "Classifying Matter" please go to:

http://www.flinnsci.com/Sections/MS/Activities/MS_actb.asp

We look forward to serving you in this new school year. www.flinnsci.com <<http://www.flinnsci.com>>

NASA's 2nd Waste Limitation Management and Recycling Design Challenge

NASA is inviting students in grades 5-8 to participate in the 2nd Waste Limitation Management and Recycling Design Challenge. The challenge uses real-world scenarios that meet science and mathematics content standards. Students can participate in a formal, informal or home-school setting.

Teams of up to six students will design a water recycling system for the unique environment of the moon. Teams will then test their system on a simulated wastewater stream. Proposals and results are due **Feb. 28, 2011.**

The winning teams will be announced in May 2011. The top three teams will receive awards. The first place team will receive an expense-paid trip to NASA's Kennedy Space Center in Florida. During the winning team's visit to Kennedy, students will gain firsthand knowledge about NASA's missions, receive behind-the-scenes tours of NASA's launch facilities, and learn about future aerospace and engineering careers.

For more information and contest rules, please visit <http://wlmr.nasa.gov/>.

Questions about the challenge should be directed to Jay Garland at jay.l.garland@nasa.gov.

New Resource Available from Understanding Science

Last month, [Understanding Science](http://www.understandingscience.org/) released a new resource on their website entitled "The philosophy of science." This [resource](#) briefly introduces the philosophy of science and some influential people and ideas from the field. Visit the Understanding Science website to access this and many other resource for teaching and learning about how science works. <http://undsci.berkeley.edu/>

Monthly Web Seminars Show K-5 Teachers How to Integrate Science and Literacy Instruction

Science and literacy instruction in the elementary grades is the focus of a new series of web seminars just announced for the 2010-2011 school year. The series is sponsored by [Beyond Penguins and Polar Bears](http://www.beyondpenguins.org/), an NSF-funded project that provides professional development and instructional resources to elementary teachers.

The series is free, and no registration is required. Seminars are held from 3:30 to 4:30 p.m. ET on one Thursday a month during the school year. Teachers are invited to [log on](#) to learn from the knowledgeable seminar presenters and share their ideas with other teachers from across the country!

Information about all of the presentations and the recordings of all past seminars are available [online](#). <http://beyondpenguins.nsdl.org/>

NBC's "Education Nation" Series

NBC News will launch its first annual "Education Nation" the week of September 27, 2010. This nationally broadcast conversation about improving education in America will begin with an interactive two-day summit on Rockefeller Plaza in New York City. Secretary of Education Arne Duncan, New York City Mayor Michael Bloomberg, Delaware Governor Jack Markell, Minnesota Governor Tim Pawlenty, Harlem Children Zone's CEO Geoffrey Canada, President of MIT Susan Hockfield, National Superintendent of the Year Elizabeth Morgan, Civil Rights Activist Al Sharpton, and President of University of Phoenix Bill Pepicello, Ph.D., will join other leaders in education to open a national dialogue and address the gap between how we perceive education and the actual results we are producing today. For more information, visit the [Education Nation website](#).

National Park Foundation Offers Electronic Field Trip

On October 13, the National Park Foundation's Electronic Field Trip series will broadcast from North Cascades National Park to teach 4th-grade to 8th-grade students around the country about climate change. A show will air on that date at 9 a.m. Alaska time.

This will be the first Electronic Field Trip broadcast from a park in Washington State and the first focused on the planet's changing climate. With its northerly location and high elevation, North Cascades National Park is already experiencing melting glaciers and loss of species.

Educators and students can take advantage of the program by registering for free to watch the show premiere. They will also have access to a companion web site, launching September 1, that features downloadable lesson plans and online activities to enhance the learning experience. Educators can register to participate in this broadcast now by clicking on "Registration for Teachers" at www.nationalparks.org/eft <<http://www.nationalparks.org/eft>> .

What is Landscape Architecture?

When your students think of architects they probably think of buildings, but there's a broad career field that's focused on designing all the green space outside of buildings.

Introduce your students to two award-winning landscape architects and show them real-world examples of how math, science, history and art combine in this creative and rewarding profession.

Watch the movie and download the classroom activities here:
http://www.thefutureschannel.com/dockets/hands-on_maths/landscape_architects/

from ANROE e-Newsletter

JASON Online Games

All of JASON's games are available online in the JASON Mission Center. Teachers can search for games and labs by state standards in the JASON Mission Center Web site, where you will also find worksheets and hand-outs. Games include Operation: Resilient Planet, Storm Tracker, and more. Free registration is required.

<http://www.jason.org/public/whatis/games.aspx>
<<http://www.jason.org/public/whatis/games.aspx>>

OceanLink

OceanLink, from Bamfield Marine Sciences Center, offers information about the effects of climate change, marine biology education, and careers; answers to questions about the ocean and marine organisms; and more. Check out the archive for Ask a Scientist, the glossary, and more.

<http://oceanlink.info/index.html>
<<http://oceanlink.info/index.html>>

Operation: Tectonic Fury

The JASON Project's new geology curriculum for middle school, Operation: Tectonic Fury, features scientists and takes your students from the top of Mount St. Helens to the depths of a West Virginia mine in search of answers to Earth's geologic mysteries. The free, online unit offers research articles, inquiry-based activities, videos, games, and other multimedia, and allows students to investigate and analyze Earth's past, present, and future to unlock its geologic mysteries.

<http://www.jason.org/public/WhatIs/CurrOTFIndex.aspx>
<<http://www.jason.org/public/WhatIs/CurrOTFIndex.aspx>>

Observe the Moon Night - September 18, 2010

Did you know? September 18, 2010 will mark the first ever International Observe the Moon Night! This year's InOMN will be used as our pilot year to inform us on how to make it better and more interactive. We're testing the waters and would love to hear from you about how we're doing. The InOMN website is ever evolving, so please be sure to check back often!

<http://observethemoonnight.org/>

Registration Open for NASA Explorer School Project

The NASA Explorer Schools (NES) project is NASA's classroom-based gateway for middle school (grades 4–8) and high school (grades 9–12) classrooms. NES provides free teaching and learning resources that promote student engagement in science, technology, engineering and mathematics, or STEM. The project provides opportunities for teachers and students to participate in NASA's mission of research and discovery through inquiry-based experiences directly related to the work of NASA scientists and engineers.

Throughout the school year, the NES Virtual Campus website will serve as a portal to dynamic learning experiences, allowing students to examine real-world problems and challenges based on NASA research and exploration. Classroom activities are coupled with special events featuring interactions with NASA's scientific and technical workforce, so students learn firsthand about mission highlights, new technologies, and research findings.

Teachers have the opportunity to participate in professional development experiences delivered through NES Virtual Campus technology to support effective classroom implementation of NES resources. At the end of the year, NES will recognize its best teachers and schools with NASA experiences such as field center training, research opportunities, and flights aboard a reduced-gravity aircraft.

All participants must be U.S. citizens. Each must be an administrator, aide, curriculum specialist, educator, guidance counselor, media specialist, resource teacher, or student teacher in a state- or nationally accredited K-12 education institution in the United States or a U.S. territory.

For more information and to schedule an orientation session, visit the [NASA website](#).

Final Flight of the Space Shuttle: A Remarkable Grade 5-12 Opportunity for Student Experiments

<http://ncesse.org/2010/06/ssep/>

In June The National Center for Earth and Space Science Education (NCESSSE) launched the Student Spaceflight Experiments Program (SSEP), a historic opportunity for students to propose experiments for the final scheduled flight of the Space Shuttle, STS-134.

The Student Spaceflight Experiments Program (SSEP) provides middle and high school classes across the U.S. the ability to propose experiments to fly in low Earth orbit, and to celebrate that accomplishment with their local community and with national and global audiences. Entire school districts can participate, with student teams proposing experiments like professional scientists and engineers.

Phase 1 of the program is a unique and historic opportunity to propose an experiment to fly aboard STS-134, the final scheduled flight of the Space Shuttle. Selected student experiments would fly for 10 days aboard Space Shuttle Endeavour. Launch is tentatively scheduled for November 2010, but a launch slip to mid-January is expected, enabling this student spaceflight experiments opportunity.

We want the final voyage of the Space Shuttle to also mark a new beginning for private sector sponsored student experiments in space, which organizations on the SSEP Team have pioneered. The flight of Endeavour will be used as a gateway to Phase 2 of the SSEP — sustainable, ongoing access to space for grade 5-12 students in-

spired to propose experiments for low Earth orbit aboard the International Space Station (with transport via the Russian Progress and Soyuz vehicles), and on suborbital space flights.

SSEP is undertaken by the National Center for Earth and Space Science Education (NCESSSE), in partnership with American Aerospace Advisors Inc. (AAAI).

For more information or to set up a telecon contact:

Dr. Jeff Goldstein, Center Director
National Center for Earth and Space Science Education
301-395-077 jeffgoldstein@ncesse.org

Grant Opportunity: K-12 Environmental Literacy

The U.S. Department of Commerce, NOAA, requests proposals for Environmental Literacy Grants for Formal K-12 Education. This RFP will support K-12 education projects that advance inquiry-based Earth System Science learning and stewardship directly tied to the school curriculum, with a particular interest in increasing climate literacy. \$8 million expected to be available, up to 10 awards anticipated. Responses due 1/12/11. For more info, contact Carrie McDougall at oed.grants@noaa.gov or go to: <http://www.grants.gov/search/search.do?mode=VIEW&oppId=56016>. Refer to Sol# NOAA-SEC-OED-2011-2002608.

Thanks to Penny Williams, STEM Dept. for contributing.

Waste Limitation Management and Recycling Design Challenge

It's time to go back - to stay! Join the waste limitation management and recycling design challenge and create a sustainable water recycling system for the moon. The 2nd annual challenge is now open, with entries due February 28, 2011. The first place team will win a trip to the Kennedy Space Center and more!

<http://wlmr.nasa.gov/>

Thanks to Mark Johannes, Romig MS for contributing.

Free Webcast: Our Solar System - An Inquiry Tour

The Aerospace Education Services Project, or AESP, is presenting a free webcast on **Aug. 31, 2010, at 4 p.m. EDT**. Teachers of grades 5-8 are invited to take a learning tour of the solar system in this hour-long inquiry-based professional development webcast. The webcast will show teachers how to use NASA missions and curriculum support materials in the classroom. Participants will develop a better understanding about Earth's neighbors in space and their relationship to Earth.

For more information and to view the webcast, visit <http://neon.psu.edu/31Aug2010/>. If you have any questions about the webcast, please contact Steve Culivan at Stephen.P.Culivan@nasa.gov.