Newsletter of the Cleveland Regional Council of Science Teachers

The CRCST Quarterly

Volume LXV No. 1 | 65 Years | Spring 2009

…...from the Editor

I saved a copy of the front section of the Plain Dealer from Friday, Feb. 13 because I saw an article about scientists reconstructing the genome of Neanderthal (page 3). A couple weeks later when I worked on this newsletter, I revisited the paper and found another article of interest about the genetic mapping of the virus causing the common cold (page 4) and then I noticed additional items of interest including this: The killer whales that hunt around Prince William Sound have never recovered from the *Exxon Valdez* oil spill which occurred 20 years ago. "To blame it all on the spill would not be fair, but that's the final death blow," said marine mammal biologist Craig Matkin of Homer, Alaska, who has tracked the animals since the mid-1980's. As much as 16,000 gallons of oil still lingers in the Sound.

I then read an article titled: Paper, plastic bags may be taxed in D.C. Consumers will be asked to pay a nickel per bag when buying stuff. A majority of the D.C. Council supports legislation that could tax not only plastic bags, but paper as well. If the bill is passed, the 5-cent fee would be split between businesses and the city, which would use its share to help clean the Anacostia River and offer free reusable bags to elderly and low-income residents.

I was struck by the relationship between these two articles: there are consequences from our use, whether responsibly or not, of products that purport to make our lives easier.

We know that using plastic bags results in too many of them ending up in our environment and especially in our rivers and lakes (and eventually oceans). They are produced using petroleum and break down into microscopic particles which are toxic and, like DDT and other molecular poisons that enter our environment, are liable to be biomagnified through the food web. We know that using paper bags results in trees being cut for the raw material and all the chemical pollution that is produced during paper making.

We know, too, that using reusable bags for shopping is a good idea for all the right reasons - plus their easier to carry.

Why is it so dang hard for reasonable people to make this rather straightforward and simple change? This may not strike you as a parallel to the government stepping in and requiring seatbelts to be worn in vehicles while driving, but our future and the future success of humans is certainly linked to our treatment of the environment. So, I applaud the D.C. Council.

Your Assignment: Take an extra cloth bag (I know you have lots stuffed in a closet or hanging on a clothes tree somewhere) with you and engage a fellow shopper/citizen in the need to NOT use plastic or paper and give the person a cloth bag. Maybe you will provide a little enlightenment outside of the classroom as well as inside.

Presidential Column
Ray Patacca, President

Five hundred and thirty. Five hundred and thirty what? Five hundred and thirty science fair projects entered in the NEOSEF Science Fair for 2009 – the most projects ever entered by Cleveland area students!

The other day thirty five CRCST members and I had the distinct honor and pleasure to judge many of these five hundred and thirty projects at the Fair at John Carroll University. Many new schools were represented this year including Cleveland's Wade Park School. This was the first time in memory that this school even had a science fair, let alone entering the regional competition. Fair judging this year was enjoyable and difficult, too, because there were so many great projects. The common thread among these projects was the students' use of the scientific method applied to some very unique problems and questions. One explored rivers, another compared "green" all purpose cleaners while still another made paper from grass instead of tree pulp and on and on.

Even more important than the projects, awards and the effort put forth by each student is the attitude so apparent when talking to the students about their projects. They exhibited a scientific attitude along with an exceptional project. So often student attitude is negative, but not here, not on March 3; the overwhelming attitude was wonder, dedication, inspiration, and a love of science. Congratulations to these kids for pulling themselves away from all the trappings of our technological wonders . . . of TV, texting, email, electronic games, and all the rest. Continued on Page 6

Science in the News

In 1997, while sailing from Hawaii to California, amateur scientist Captain Charles Moore made a surprising discovery -- a vast "garbage patch" of plastic debris in the middle of the Pacific Ocean.

Today, Moore heads the Algalita Marine Research Foundation <http://www.algalita.org/ >, which is dedicated to researching the extent of plastic pollution in the world's oceans. Captain Moore has developed procedures to monitor marine and beach plastic pollution, and has done ocean and coastal sampling for plastic fragments over twenty thousand miles of the North Pacific Ocean.

LA River Trash

Holly Bamford is the director of the National Oceanic and Atmospheric Administration's Marine Debris Program < http://marinedebris.noaa.gov/ >. The program's aim is to support national and international efforts to prevent, identify, and reduce the occurrence of marine debris, including plastic debris.

A green sea turtle is caught in a derelict fishing net in Hawaii. Sea turtles breathe at the surface, so if they get entangled and cannot escape, they drown.

Solar-Power Breakthrough

Researchers have found a cheap and easy way to store the energy made by solar power.

By Kevin Bullis

Researchers have made a major advance in inorganic chemistry that could lead to a cheap way to store energy from the sun. In so doing, they have solved one of the key problems in making solar energy a dominant source of electricity.

Daniel Nocera, a professor of chemistry at MIT, has developed a catalyst that can generate oxygen from a glass of water by splitting water molecules. The reaction frees hydrogen ions to make hydrogen gas. The catalyst, which is easy and cheap to make, could be used to generate vast amounts of hydrogen using sunlight to power the reactions. The hydrogen can then be burned or run through a fuel cell to generate electricity whenever it's needed, including when the sun isn't shining.

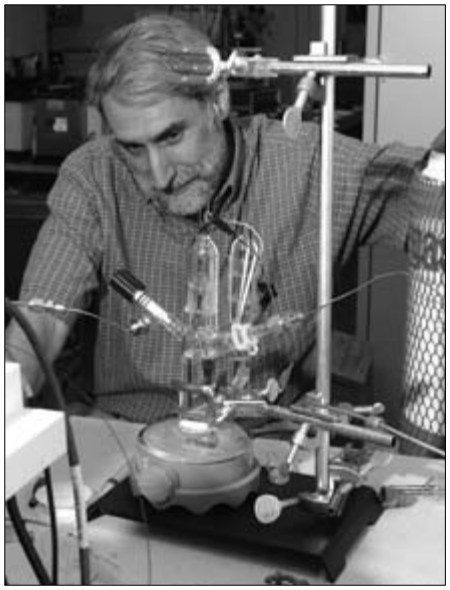
Solar power is ultimately limited by the fact that the solar cells only produce their peak output for a few hours each day. The proposed solution of using sunlight to split water, storing solar energy in the form of hydrogen, hasn't been practical because the reaction required too much energy, and suitable catalysts were too expensive or used extremely rare materials. Nocera's catalyst clears the way for cheap and abundant water-splitting technologies.

Nocera's advance represents a key discovery in an effort by many chemical research groups to create artificial photosynthesis--mimicking how plants use sunlight to split water to make usable energy. "This discovery is simply groundbreaking," says Karsten Meyer, a professor of chemistry at Friedrich Alexander University, in Germany. "Nocera has probably put a lot of researchers out of business." For solar power, Meyer says, "this is probably the most important single discovery of the century."

The new catalyst marks a radical departure from earlier attempts. Researchers, including Nocera, have tried to design molecular catalysts in which the location of each atom is precisely known and the catalyst is made to last as long as possible. The new catalyst, however, is amorphous--it doesn't have a regular structure--and it's relatively unstable, breaking down as it does its work. But the catalyst is able to constantly repair itself, so it can continue working.

In his experimental system, Nocera immerses an indium tin oxide electrode in water mixed with cobalt and potassium phosphate. He applies a voltage to the electrode, and cobalt, potassium, and phosphate accumulate on the electrode, forming the catalyst. The catalyst oxidizes the water to form oxygen gas and free hydrogen ions. At another electrode, this one coated with a platinum catalyst, hydrogen ions form hydrogen gas. As it works, the cobalt-based catalyst breaks down, but cobalt and potassium phosphate

in the solution soon re-form on the electrode, repairing the catalyst.



Splitting water: Daniel Nocera poses with a device for breaking down water into hydrogen and oxygen. The device uses an inexpensive catalyst that he has developed.

Credit: Donna Coveney, MIT

Nocera created the catalyst as part of a research program whose goal was to develop artificial photosynthesis that works more efficiently than photosynthesis and produces useful fuels, such as hydrogen. Nocera has solved one of the most challenging parts of artificial photosynthesis: generating oxygen from water. Two more steps remain. One is replacing the expensive platinum catalyst for making hydrogen from hydrogen ions with a catalyst based on a cheap and abundant metal, as Nocera has done with the oxygen catalyst.

Finding a cheaper catalyst for making hydrogen shouldn't be too difficult, says John Turner, a principal investigator at the National Renewable Energy Laboratory, in Golden, CO. Indeed, Nocera says that he has promising new materials that might work, and other researchers also have likely candidates. The second remaining step in artificial photosynthesis is developing a material that absorbs sunlight, generating the electrons needed to power the water-splitting catalysts. That will allow Nocera's catalyst to run directly on sunlight; right now, it runs on electricity taken from an outlet.

There's also still much engineering work to be done before Nocera's catalyst is incorporated into commercial devices. It will, for example, be necessary to improve the rate at which his catalyst produces oxygen. Nocera and others are confident that the engineering can be done quickly because the catalyst is easy to make, allowing a lot of researchers to start working with it without delay. "The beauty of this system is, it's so simple that many people can immediately jump on it and make it better," says Thomas Moore, a professor of chemistry and biochemistry at Arizona State University.

Scientists in Germany reconstruct Neanderthal genome

February 13, 2009 Nicholas Wade - New York Times

Scientists report that they have reconstructed the genome of Neanderthals, a human species that was driven to extinction some 30,000 years ago, probably by the first modern humans to enter Europe. The Neanderthal genome, when fully analyzed, is expected to shed light on many critical aspects of human evolution.

It will help document two important sets of genetic changes:

- Those that occurred between the human line's split from chimpanzees, some 5.7 million years ago, and the split between Neanderthals and humans 300,000 years ago.
- The changes in the human line after it diverged from Neanderthals.

An early inference that can be drawn from the new study is that there is no significant trace of Neanderthal genes in modern humans. This confounds speculation that modern humans could have interbred with Neanderthals, thus benefiting from the genes that adapted the Neanderthals to the cold climate that prevailed in Europe during the last ice age, which ended 10,000 years ago.

Svante Paabo of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, led a team that had to overcome a series of daunting technical obstacles to produce the draft of the Neanderthal genome.

Assisting Paabo was the company 454 Life Sciences, which invented a new DNA decoding machine that works by analyzing millions of very small fragments of DNA in parallel. The 454 machine was particularly suitable for the Neanderthal project, since DNA from Neanderthal bones is fragmented in just this way.

Paabo began his project more than 10 years ago, when he succeeded in extracting the first verifiable piece of Neanderthal DNA. Many had tried to do so but failed. Most Neanderthal bones have no recoverable DNA and those that do are heavily contaminated with modern human DNA from the hundreds of scientists and curators who handled them. Distinguishing human and Neanderthal DNA is hard because they are so similar.

He said at a news conference in Leipzig on Thursday that he now has retrieved usable DNA from six Neanderthals. From these six individuals, he has analyzed 3.7 billion units of DNA. The Neanderthal genome, like that of modern hu

mans, is 3.2 million units in length. Because many units have been analyzed several times over, and many not at all, Paabo can now see about 63 percent of the Neanderthal genome. He said he will continue to analyze the Neanderthal genome until he has accumulated the equivalent of 20 Neanderthal genomes, which will allow almost every unit to be accurately known.

The Birddog returns to Three Mile Island; a harbinger of Spring

Team maps genetic code of common cold
February 13, 2009 Trine Tsouderos Chicago Tribune

Chicago- Scientists announced Thursday that they have cracked the genetic code of all known species of the common cold virus, a major step in finally developing a cure, perhaps even a vaccine, for the common cold.

The findings, published this week in the journal Science, also highlighted why researchers have found it so difficult to develop effective drugs to combat the virus, which sickens millions each year and sends thousands of children with asthma to the hospital.

"We have never known what [the viruses] all look like, and if you want to go after them, then you need to know that," said a co-author of the study, Ann Palmenberg, a molecular virologist at the University of Wisconsin at Madison. "So we decided to go after the whole thing."

The genetic code, or DNA, of each organism, from viruses to people, is essentially the instruction manual of how to build that organism. Comparing genetic codes can also reveal whether two organisms are related, or evolved from a common ancestor. If you map the genetic code of enough related organisms, you can even make a family tree for them.

That's what researchers did with the 99 known strains of the common cold virus, or human rhinovirus. What they discovered, after they pieced the tree together, is that there are many branches and a lot of variety, which is why attempts to build one drug to combat all varieties of the virus have not worked.

Past CRCST President (1977), biology teacher and science department chair, **Frank Miller**, has been added to the *Charles F. Brush High School Wall of Achievement* (on Nov. 13, 2008). The purpose of *The Wall of Achievement* is to recognize and honor graduates and teachers of C. F. Brush H. S. who have displayed outstanding achievement in areas such as leadership, service of the community, service to Brush High School, humanitarianism, creativity, courage, and careers which have benefitted others.

Frank was my department chair, during my short tenure at Brush and he was a truly inspiring gentleman in a quiet and exemplary manner. I was glad to have spent some time with him. .....*the editor*

Opportunities for Teachers and Students

Attention all 3rd and 4th grade teachers!!!
Here's a great science and literacy professional development opportunity.

Do you have enough time to teach science and ELA? Would you like to improve your content knowledge and pedagogical skills in both areas? Then this project is for you! Seeds of Science/Roots of Reading®: Integrating Science & Literacy is a project dedicated to bringing together the latest research based materials from the Lawrence Hall of Science (creators of GEMS guides and FOSS kits) with local scientists from John Carroll University and the Holden Arboretum. Local experience teachers who have used the *Seeds of Science/Roots of Reading*® materials in their own classrooms will guide you throughout this year long professional development. Limited space available.

Teams of 2 or more teachers from one school will be given priority.

Your commitment:
1. Participate in a 1-week summer workshop (week of Aug 3 OR 10, 2009)
2. Teach one of the Seeds/Roots® units in your classroom
3. Participate in a 3-hour training session and semester-long ***iDiscovery*** follow-on workshop ($50 fee required)
4. Participate in 2 full-day workshops during academic year
5. Participate in evaluation of project

You'll receive:
1. $150 stipend at the completion of summer workshop
2. Discounted rates for 5 graded non-degree graduate credits
3. One Seeds/Roots® teaching kit (includes all student books, teacher's guide, and hands-on science materials up to a $1100 value)
4. Your district will receive up to $85 per day substitute reimbursement for your attendance at the academic year workshops

To apply go to: http://www.jcu.edu/cmsett/News/seedsroots.htm

Have questions? Call the Center for Mathematics and Science Education, Teaching and Technology at John Carroll University 216-397-4575.

Support for *Seeds of Science/Roots of Reading®: Integrating Science & Literacy* is provided by a grant under the federally funded Improving Teacher Quality Program, administered by the Ohio Board of Regents. Support for ***iDiscovery*** is provided by a grant under the federally funded Improving Teacher Quality Program, administered by the Ohio Board of Regents; and Miami University.

Science and Mathematics Data Analysis (SAMDA) for grades 1-6 teachers

Open to teachers of mathematics and science in grades 1-6, this workshop will develop your understanding of how to fully integrate mathematics with science using data analysis techniques. Lunches, books, and other take-home educational materials will be provided. You will have an opportunity to learn how to design hands-on, inquiry lessons that generate data and then practice non-formulaic methods of analyzing the data. All the lessons and materials are aligned to benchmarks from the Ohio Academic Content Standards.

Participate in a one week summer workshop July 6-9, 2009. Then during fall, 2009 participate in an *iDiscovery* online class to extend your learning and practice implementing SAMDA lessons. Upon completion of the summer workshop, you will receive a stipend of $100. Participants may purchase 1 or 2 hours of graded non-degree graduate credit from John Carroll University for the summer session. Upon the successful completion of the online class, you will earn 2 hours of graded non-degree graduate credit from Miami University at no cost.

Priority will be given to teams of teachers from our partner districts: Painesville City and Warrensville Heights. The maximum enrollment is 24. We are inviting 8 teachers from each of our partner districts to register by April 15, 2009. Additional priority will be given to teams of teachers from the same building. After April 15, unfilled seats will be open to all grade1-6 teachers.

Registration forms can be found at: http://www.jcu.edu/cmsett/prodevelopment/SAMDA2009.htm

Have questions? Call the Center for Mathematics and Science Education, Teaching and Technology at John Carroll University 216-397-4575.

The SAMDA project is supported by a Discovery Center grant. Support for ***iDiscovery*** is provided by a grant under the federally funded Improving Teacher Quality ($160 per credit) Program, administered by the Ohio Board of Regents; and Miami University.

A Compilation of Environmental Education Programs (thanks to Tom Svoboda)
http://eelink.net/pages/Site+Map+New#enviro

For short clips about evolutionary concepts see:
http://www.pbs.org/wgbh/evolution/library/index.html and check the box next to "video" in the search window.

For modern genetics and biotechnology videos see:
http://www.pubinfo.vcu.edu/secretsofthesequence/playlist_frame.asp and http://www.dnatube.com/

The following link has nice videos of pond microorganisms:
http://www.microscopyu.com/moviegallery/pondscum/index.html

Nature has just posted a brand new and freely accessible resource for those wishing to explain to students, friends or others just what the evidence is for evolution by natural selection. The site summarizes 15 lines of evidence from papers published in Nature over the past 10 years. The evidence is drawn from the fossil record, from studies of natural and artificial habitats, and from research on molecular biological processes. In a year in which Darwin is being celebrated amid uncertainty and hostility about his ideas among citizens, being aware of the cumulatively incontrovertible evidence for those ideas is all the more important.
http://www.nature.com/evolutiongems>http://www.nature.com/evolutiongems

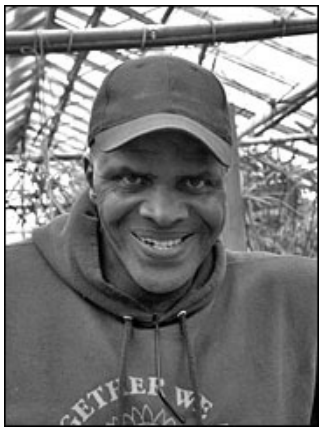
Exciting keynotes secured for the American Horticultural Society's 17th Annual National Children and Youth Garden Symposium being held at Cleveland Botanical Garden

By Renata Brown, CRCST Board Member and Associate Director of Education, Clara DeMallie Sherwin Chair in Education, Cleveland Botanical Garden

Anticipation continues to build for this event that will bring hundreds of garden managers, designers, educators and the like to Cleveland July 23-25, 2009. The Symposium's theme, "Common Ground: Gardens for a Greener Tomorrow," speaks to how gardens bring together diverse communities while fostering curiosity, wonder, understanding and acceptance. Participants from across the country will explore our gardens and programs – and join in the 10th anniversary celebration of the Hershey Children's Garden.

Garden staff and their counterparts at the Alexandria, Virginia-based American Horticultural Society continue to collaborate on plans for this summer's exciting symposium on youth gardening. Highlights include:

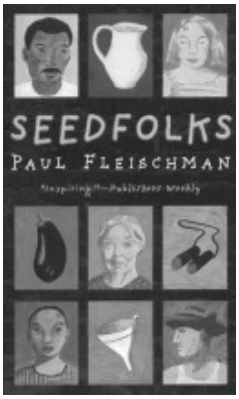
Will Allen – opening keynote address, Thursday, July 23



Will Allen has been the keynote speaker at several national conferences and the recipient of numerous local, state, and national awards and recognitions, including a 2005 Leadership for a Changing World Award from the Ford Foundation and the 2008 MacArthur Fellow Genius Award. In 1995 Mr. Allen founded the urban farming organization, **Growing Power,** in Milwaukee in order to combat the unhealthy diets of low income urban populations. His main goal was to provide affordable fruits and vegetables using a holistic farming model and sustainable food systems for city residents. Utilizing innovations such as compost heated greenhouses, Growing Power provides internships, educational programs, and hands-on training to implement this program at other sites across the country. Over 3,500 individuals receive tours of Growing Power's Community Food Center each year.

Seedfolks – Closing program, Saturday, July 25

The final day of the symposium will feature an inspiring adaption of Newberry Medalist writer and author Paul Fleischman's ***Seedfolks,*** a 1997 children's book about the creation of a community garden in inner-city Cleveland. The story is told by thirteen different people of all ages, races and backgrounds and centered on a vacant lot. The production will be coordinated and directed by Jimmie Woody, a local professional actor, director and teaching artist, who has worked with many diverse age groups and cultures throughout Cleveland and New York. As an actor he has performed at historic venues such as Karamu House, Cleveland Playhouse and The New York Shakespeare Festival.



Registration for the Symposium can be found on the American Horticultural Society's website: http://www.ahs.org/youth_gardening/national_youth_garden_symposium.htm

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Congratulations too, to the science teachers who inspired, cajoled, and encouraged each child. It is apparent that there is more to inspire these kids than a good science grade. Was it mom, dad, big sister or brother?… maybe? I'll bet it was a science teacher who inspired them.

I can remember Mr. Crosby. He taught my 5th grade science class. He actually did science experiments in class instead of reading out of a book! WOW, I was hooked on science for life! Today we can bring so much more to science class like, GEMS, I-Discovery, Skit Kits, FOSS; all types of inquiry science and more. You are the Mr. Crosby in their lives. You make the difference in their attitude about science. And for that… I say thank you! Who knows, maybe one of the kids that you inspired to enter the science fair will lead us to the next generation of scientific discovery and technology. These kids are the science teachers and science leaders of tomorrow.

CRCST and its members are an integral part in shaping students attitudes toward science. To help reinforce and support our members' enthusiasm for science, we have planned two spring symposiums. They are a combination of professional development and good family fun centered around, what else…science. This year we invite our members to bring your family to the Spring Symposium/SECO Saturday. What? … you ask? Yes, bring your family. This year's symposiums are held on two Saturday mornings at the Lake Metroparks Farmpark on April 25, and at The Cleveland Botanical Garden on May 1. At each site we offer several hours of focused science activities for you to use with your students, and good science fun for your family. Later in the day join your family to explore plants, animals and farming. Please take a look at the flyer in this issue (page 9) of the newsletter and plan to join us. You can get CEU's for attending. What have your got to loose? What have you got to

gain?…more enthusiasm for science! See you there!

Save the Frogs Day

Did you know that Save the Frogs Day is April 28, 2009? Check out this web site for more information:

http://www.savethefrogs.com/day/index.html

BOOK REVIEW

by: **Bob Marquard**

Jared Diamond's *The Third Chimpanzee* is a masterpiece that explains our evolution via anatomical, cultural, and behavioral perspectives. Diamond's synthesis of biology and geography across millennia into a cogent story of human evolution is a pleasure to read.

The book is nicely divided into five sections. Part one concentrates on our genetic closeness to chimpanzees and provides numerical data which supports that chimp and human really do belong in the same genus. Part two reveals details about our rather strange life cycle and unique features when compared to other mammals. Sexuality, rationale for hidden ovulation, adultery, and mate choice are just some of the topics that are illuminated. The cultural hallmarks that make us human--language, technology, agriculture, art, genocide, mass extinction of other species, and drug use--are nicely explained in part three. Also covered in the third section is the likelihood of intelligent life on neighboring planets.

Peopling of the world from an African-centric model and the effect on biodiversity debunks the notion that mega fauna died out from natural causation. Rather, we were the culprit. In section four, Diamond examines why Europeans conquered native people on other continents so easily and with such grim results.

The final section projects where humanity is heading without better political will and leadership. Without greater awareness and action, we are apt to repeat the environmental collapse that befell the Mayans, Anasazi, and native people on Easter Island. Put *The Third Chimpanzee* on your must-read list; you won't be disappointed.

Tips for Effective PowerPoint Presentations

by Colin Maxwell

Fonts

- Select sans-serif fonts such as Arial or Helvetica. Avoid serif fonts such as Times New Roman or Palatino as they are sometimes more difficult to read.
- Use no font size smaller than 24 point.
- Clearly label each screen. Use a larger font (35-45 points) or different color for the title.
- Use a single sans-serif font for most of the presentation. Use different colors, sizes and styles (bold, under line) for impact.
- Avoid italicized fonts as they are difficult to read quickly.
- No more than 6-8 words per line
- For bullet points, use the 6 x 6 Rule. One thought per line with no more than 6 words per line and no more than 6 lines per slide
- Use dark text on light background or light text on dark background. However, dark backgrounds sometimes make it difficult for some people to read the text.
- Do not use all caps except for titles.
- To test the font, stand back six feet from the monitor and see if you can read the slide.

Graphics and Design

- Keep the background consistent and subtle.
- Use only enough text when using charts or graphs to explain clearly label the graphic.
- Keep the design clean and uncluttered. Leave empty space around the text and graphics
- Use quality clipart and use it sparingly. The graphic should relate to and enhance the topic of the slide.
- Try to use the same style graphics throughout the presentation (e.g. cartoon, photographs)
- Limit the number of graphics on each slide.
- Check all graphics on a projection screen before the actual presentation.
- Avoid flashy graphics and noisy animation effects unless they relate directly to the slide.
- Limit the number of transitions used. It is often better to use only one so the audience knows what to expect.

Color

- Limit the number of colors on a single screen.
- Bright colors make small objects and thin lines stand out. However, some vibrant colors are difficult to read when projected.
- Use no more than four colors on one chart.
- Check all colors on a projection screen before the actual presentation. They may project differently than what appears on the monitor.

General Presentation

- Check the spelling and grammar.
- Do not read the presentation. Practice the presentation so you can speak from bullet points. The text should be a cue for the presenter rather than a message for the viewer.
- Give a brief overview at the start. Then present the information. Finally review important points.
- It is often more effective to have bulleted points appear one at a time so the audience listens to the presenter rather than reading the screen.
- Use a wireless mouse or pick up the wired mouse so you can move around as you speak.
- If sound effects are used,

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Family Day at Put-in-Bay South Bass Island

Saturday, May 16, 2009

Join fellow educators, their families and friends on a day long excursion to South Bass Island, Ohio, location of the quaint Village of Put-in-Bay. Visit The Ohio State University Stone Laboratory facility. Walk through the world's largest known geode. Tour a limestone cave. Enjoy historical museums and the spectacular view from the top of Perry's International Peace Memorial. Walk through a butterfly house. For those wishing to partake in the renowned island nightlife, motel accommodations are being arranged.

We will meet at the Port Clinton, Ohio ferry terminal for a 10:15 sailing directly to Put-in-Bay. Upon arrival, you may choose to rent a golf cart or bicycles to tour the island. If you wish to walk, most attractions are within10 minutes of the dock. A scheduled tour of Stone Labs is being arranged.

For those unfamiliar with the island, there is a large city park directly across from the ferry dock. It has a playground and public restrooms. The village of Put-in-Bay surrounds the park on three sides and abounds with shops, restaurants, and bars. Perry's Monument and International Peace Memorial is immediately adjacent to town. It offers a museum with a diorama and film about the Battle of Lake Erie during the War of 1812. There is an elevator to the top of the monument where you can enjoy a spectacular view of the surrounding islands. The Perry's Cave complex, about a mile from town, offers a limestone cave with an underground lake, miniature golf, gemstone sluicing, a butterfly house and a maze. Across from Perry's Cave is Heinemann's Winery and Crystal Cave. A tour of both includes the chance to walk through a giant geode and sample glass of wine or grape juice.

Perry's Cave is rumored to have been discovered by Commodore Perry. While it was most likely discovered by one of his sailors, the fact remains that it has been well known and extensively used for nearly 200 years. This has resulted in it being denuded of features like stalactites and stalagmites. The most notable feature in this cave is the subterranean lake. Its level rises and falls with that of Lake Erie, so it is assumed they are connected. Divers in scuba gear have descended into the lake, but their bubbles hitting the ceiling of the chamber dislodged so much sediment that visibility was reduced to the point further exploration was impossible. To date, divers with re-breathing equipment have not attempted exploration.

Owned by the Heineman family, Crystal Cave is a must visit attraction. What is billed as the World's Largest Geode was discovered while digging a well to supply water for the family winery. Admission includes a winery tour and the opportunity to sample either their wine or non-alcoholic grape juice. The climate around Lake Erie makes Northern Ohio an ideal grape growing area. Measuring 10 meters in diameter, the cave is lined with the evaporite mineral celestite (celestine) which is a Strontium sulfate related to gypsum. Although rarely found, it has limited commercial application, the most common use being the mineral that burns red in fireworks.

Return ferries to the mainland run until midnight so you can enjoy the island as long as your time allows. For those wishing to stay through evening festivities, a block of hotel rooms is being reserved.

Approximate costs for the trip:

Round trip ferry	$ 28.00 per adult
Close in ferry parking	$ 2.00
Golf Cart rental	$ 13.00 per hour, $ 75.00 per day
Bicycle rental	$ 4.00 per hour, $12.00 per day
Perry's Monument	$ 3.00
Perry's Cave	$ 7.50
Butterfly House	$ 7.50
Crystal Cave	$ 6.00

Souvenirs, fudge, beverages, etc. $$$$$$$$$$

Group discounts will be negotiated depending on how many people want to go.

Call or email Mike Hickey to make reservations. 440-725-5628 mikeshickey@yahoo.com

Educator Workshops

2009: The Year of Science

Teachers AND their families learning science together!

Teachers, learn ways to inspire your classroom with hands-on, fun science activities. Enjoy a morning continental breakfast and coffee, followed by engaging presentations and networking with your colleagues. Receive lesson plans and supplemental materials, as well as your very own copy of a book associated with a lesson you will experience. Then, meet back up with your family to share the science you've just learned. All while earning 0.3 CEU credits! Lunch is available for purchase at both venues .

Cost for each workshop: $15/CRCST, SECO OR CRABS member

$30/nonmember (includes CRCST membership), $5 additional adult admission, $3 child admission, ages 2 & under free

Workshop #1: Saturday, April 25, 2009, 9:30 am – 1 pm (Preregister by April 22)

Animal diversity (PreK-3 teachers) and renewable energy (gr. 9-12 teachers)
Families will learn the origin of their favorite food -- pizza -- and make their own to sample for lunch. They'll tour the Farmpark grounds, milk a cow and make ice cream. Meet the baby lambs, investigate bees and the hydroponic green house, take a wagon ride and more!! Whew!

To register for this event at **Lake Metroparks Farmpark** call (440) 358-7275, send email to registration@lakemetroparks.com or go on line: http://www.lakemetroparks.com/programs/

Workshop #2: Saturday, May 2, 2009, 9:30 am – 1 pm (Preregister by April 29)

Plant parts, food chains and webs, and photosynthesis – for teachers of grades 4-8

Families will explore a Costa Rican cloud forest and a Madagascar spiny desert, replete with native plants and animals from both regions. Explore the Hershey Children's Garden as we prepare to celebrate its 10th Anniversary. And get your green on by participating in Earth Day and Arbor Day activities.

To register for this event at **Cleveland Botanical Garden**, call (216) 721-1600, send email to botanicoolregistrar@cbgarden.org or go on line: http://www.cbgarden.org/

Nature Video: David Attenborough on Darwin and the Bible

British broadcaster Sir David Attenborough presents his views on Charles Darwin, natural selection, and how the Bible has put the natural world in peril in an exclusive interview for Nature Video. Talking about his new program "Charles Darwin and the Tree of Life", to be broadcast on BBC One on February 1st 2009, Attenborough singles out the book of Genesis as the root cause of man's exploitation and devastation of the planet, and explains that evolution is vitally important because it inextricably places man as part of the natural world. He also gives a personal insight into his 50-year career as a science broadcaster and life-long campaigner for evolution.

Access the video free on <http://links.ealert.nature.com/ctt?kn=6&m=31229435&r=MTQ0MDY0NDE5NQS2&b=0&j=NDU0ODM4OTMS1&mt=1&rt=0>

Pennies for the Planet

The National Audubon Society's fundraising effort benefits a seabird restoration project in coastal Maine, a swamp habitat in South Carolina and the Sagebrush Sea in Wyoming. Children participate by creating an selling a field guide to local birds, holding bake sales, or simply collecting change. Materials include an educators guide, posters, reproducible activities and are found at www.penniesfortheplanet.org .

World Wind

This is an interactive world-viewer developed by NASA and can be downloaded at: http://worldwind.arc.nasa.gov The program allows users to zoom from outer space to any place on Earth—into the Grand Canyon, over the Alps or across the Sahara. Elevation and place names are incorporated as well.

Dengue Virus Visualization

A short (about 3 min.) video f WGBH and the UMass Medical School depicts the process by which a dengue virus releases its genetic contents inside a host cell near the site of a mosquito bite, allowing viral replication to begin. www.teachersdomain.org/resource/den08.sci.life.stru.dengue

The Green Zone

At the site: www.nwf.org/rrgreenzone one can determine their green IQ from the "green-ius" quiz, visit the Greenway house to find eco-friendly household tips, watch an animatd Ranger Rick consider the environmental effects of bottled water and more.

A Wildlife Refuge

This Futures Channel movie shows how biologists on a wildlife refuge near the Gulf Coast of Texas use science to maintain a safe haven for the animals. A lesson plan for grades 6-12 emphasizes the interdependence of species in the salt marsh habitat. Found at: www.thefutureschannel.com/dockets/realworld/wildlife_refuge

Elementary Lessons with Video Games

A teacher developed two elementary level physical science lessons incorporating video gaming. Visit: http://mathinscienc.info and search for Twisted Forces (fourth grade) and Play in Motion (first grade).

Adolescent Literacy Toolkit

This kit helps HS teachers embed literacy strategies into their instruction. Lesson descriptions include examples of the strategies in action. Sample science lessons at www.ccsso.org/projects/secondary_school_redesign/Adolescent_Literacy_Toolkit address the role of heat in chemical reactions, phases of mitosis and circular motion.

The News

This online project from The News Hour with Jim Lehrer uses journalism and video to inform teens (middle and HS) about current events. Related lesson plans and an annotated transcript for classroom use accompany each video. Science stories at www.pbs.org/newshour/thenews include "Cow Power," which describes how a dairy farm converts waste to energy.

Tech Tips for Teachers

Kansas middle school teacher, Marsha Ratzel shares her experience as a technology integration coach and classroom teacher to show how anyone can add tech strategies to their teaching repertoire. Her ideas are among the TeacherTopic appearing on the TeachersCount website: http://teacherscount.org/topic/topic.shtml

Connexions

This Rice Univ. project features educational resources organized to mimic the way the human brain learns; by making connections between new information and what is already known. The materials at http://cnx.org are presented in small modules that can be linked in various ways. Educators can contribute to the sites's contents, which include more than 3,600 science and technology modules.

2009 National Energy Conference for Educators

The NEED Project's conference will train teachers to in

2009 Cleveland Regional Council of Science Teachers NEOSEF Winners (grades 7-8)

Award	Amount	Student	Title of Project
Biology Sandy Eisler Award	$100	Graham Gobieski	Seeding from the Sky
Physics Sam Brooks Award	$100	Cristina Difranco	Can Proper Tire Inflation Save You Fuel?
Chemistry Irene Heller Award	$100	Christopher Bambic	The Chemistry of Sharpie Markers
Environmental Science	$50	Kelly Haller	Is Vermicomposting a Viable Alternative to Commercial Fertilizer?
Behavioral Science	$50	Julia Scharfstein	What is the Effect of Time of Day on Cognitive Function?
Earth/Space Science	$50	Hannah Andryszczyk	Starlight, Starbright….is Skyglow Affecting You're Appearance?
Health Medicine	$50	*Anamika Veermani	Do Black Cumin Seeds have Antibacterial Effects?
Engineering/ Technology	$50	Alexander Spanos	Which Wind Turbine Blade Shape is the Most Efficient?
Math & Computer Science	$50	Sofie Whitticar	How does a Fibonacci Sequence Affect the Aesthetics in Nature?

***Anamika also won the Plain Dealer Cuyahoga County Scripps Spelling Bee on March 7**

Thanks to all our judges who volunteered to spend time with the students on Tuesday, March 3 at the fair at JCU. Your help and cooperation made the judging easier and certainly helped to encourage the students.

corporate energy programs into their classroom and extra-curricular activities. This five day (July 19-23) program taking place in Nashville, TN, covers all aspects of energy education and offers three graduate credits to participants. The conference includes a one-day field experience, allowing educators to learn about a range of energy topics. Apply at www.need.org/summertraining.php by **April 1**.

Sea Camp at Texas A & M University at Galveston

The university offers week long hands-on, marine-oriented summer programs for students ages 10-18. Free K-12 teacher, counselor and administrator internships are available; interns are asked to learn along with the campers while acting as chaperones. Sea Camp, features access to research vessels, oceanographic equipment, laboratory facilities and a professional staff. Camps for various age groups will be held from June through August. After completing the internship, educators receive a Certificate of Continuing Professional Education acknowledging credit hours of science content earned. Register at www.tamug.edu/seacamp

Space Foundation's Space Discovery Institute Courses

Taking place in Colorado, courses focus on national standards. Go to www.spacefoundation.org/education/content.php?id=328 to register for one or more of the following:

- Biological and Physical Research: Human Physiology and Nanotechnology—June 15-19
- Astronomy Principles for the Classroom: Exploring Our Galaxy—June 22-26
- Space Technologies in the Classroom: Exploring Robotics and Satellites—July 6-10
- Earth Systems Science: Planetary Geology and Ecology—July 13-17
- Lunar/Mars Exploration and Base Construction—July 13-17
- Rocketry and the Biology of Living in Space, Space history and Space Law—July 20-24

Proposals to Present at the 2010 NSTA National Conference on Science Education in Philadelphia, PA (March 18-21, 2010) are due on April 15, 2009. Proposal forms and tips for writing one are available at www.nsta.org/conferences/sessions.aspx

CRCST TREASURER'S REPORT February 11, 2009 to March 4, 2009
Mary K. Evans, Treasurer

Balance on February 11, 2009		**3,044.34**
INCOME	Memberships (4)	90.00
TOTAL INCOME		90.00
EXPENDITURES	Membership Card Mailing	(69.62)
Check Order		(42.80)
NEOSEF Awards		(600.00)
TOTAL EXPENDITURES		(712.42)
Balance on March 4, 2009		**2,421.02**

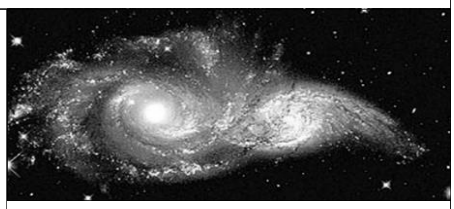
GEMS TREASURER'S REPORT

TOTAL EXPENDITURES (GEMS Books)	(1,652.40)
Balance on March 4, 2009	**9,767.40**

From Page 7 - wait until the sound has finished to speak.
- If the content is complex, print out the slides so the audience can take notes.
- Do not turn your back on the audience. Try to position the monitor so you can speak from it.

Adapted from:

1. Bankerd, Kathy. "How to Optimize Projection Technology: Using Fonts, Graphics, and Color to Maximize the Effectiveness of Your Presentation". Syllabus. November/December 1997.
2. Bird, Linda. "Avoid the Mistakes of PowerPoint Rookies." Smart Computing. January 2001.
3. Brown, David G. "PowerPoint-Induced Sleep." Syllabus. January 2001.



One of Hubble's top ten photos of 2008 - the swirling cores of two merging galaxies in the distant Canis Major Constellation about 114 million light years away. *Thanks to Connie Kowalski*

Cleveland Regional Council of Science Teachers

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