Newsletter of the Cleveland Regional Council of Science Teachers

The CRCST Quarterly

Volume LXV I No. 2 66 Years Summer 2010

……from the Editor
Norm Schmidt

STEM schools.

Oil spills that make the news and all those we do not hear about in less-developed areas.

Fail-safe valves that stop oil flow from wells located at the bottom of the sea.

Mountain top removal to get at the coal for our electrical generation and despoil the water and land with long-lasting pollutants. Clean Coal.

Mercury pollution from using Hg to more easily get gold.

Overfishing of the oceans.

Food for cattle that includes corn, antibiotics and growth hormones. Cows eat corn?

Plastic materials that are long lasting used for short term solutions.

The 4th of July fireworks that spread heavy metal pollution through the air to the land and finally the water. U - S - A!

It's OK, my MegaCorp stock went up again.

STEM schools that prepare young minds to think critically and develop solutions that do not destroy the atmosphere, lithosphere, hydrosphere or the biosphere may be the half-full glass. I'll have mine neat.

Presidential Column
Mark Waner, President

I hope this newsletter finds you well. I recently came across the following Ralph Waldo Emerson quote:

"*Finish each day and be done with it. You have done what you could; some blunders and absurdities have crept in; forget them as soon as you can. Tomorrow is a new day; you shall begin it serenely and with too high a spirit to be encumbered with your old nonsense*."

I was actually looking for something else, or so I thought, but given the end of the school year it struck me as quite apropos.

I know for my part, that I've had plenty of days replete with blunders. While I think tossing aside the absurdities we sometimes face in and out of the classroom is a good recommendation, I have a hard time taking Emerson's advice to simply forget those blunders. First of all, forgetting those missteps requires first realizing that they were in fact problems. For my part, I've learned a great deal from taking time to ask myself what went well and reflect on those things that didn't. On the other hand, it is not productive to dwell on them, in the face of the other wonderful work we do.

Summer offers educators that wonderful time to change gears and recharge the batteries. What I really enjoy about summer is that extra flexibility in schedule and the time to learn new things. It is in that learning that I am reminded why I love science and teaching. This is especially important when one has had a challenging year, as many of our members and their districts have had. By the end of the 10-12 weeks I'm revved up and ready to see those students come back. As with those rechargeable batteries that no longer hold a charge, I'll know it's time to retire when that time is no longer sufficient to reenergize for the next academic year.

I hope this summer leaves you with high spirits that won't allow all the old nonsense to impede you and your students this fall.

As part of your reflection this summer I would encourage you to consider sharing something you've learned with your fellow CRCST members. Please consider presenting at the Fall Conference at the Cleveland Metroparks Zoo on October 16 (contact Vicki Searles vms@clevelandmetroparks.com for more info). It is a great avenue for you to get some professional presenting experience before going off to SECO or NSTA. Another outlet is the CRCST Facebook page if you find something that might be of interest to other members.

Book Review

By Robert Marquard

A Short History of Nearly Everything by Bill Bryson is such a wondrous account of major scientific discoveries that when I finished the book, I immediately read it a second time. With humor and clarity, Bryson deftly knits together historical persons and personalities with very coherent stories of major scientific conquest.

Have you ever thought of how one could determine the mass or age of Earth, the inflation of the Universe's size after the Big Bang, or how to explain relativity or the time-space dimension? Unlike planets with a solid center, Earth, with its' metallic liquid core, has magnetic poles which fluctuate in intensity and historically change polarity (which, unfortunately is due).

Have you considered that extinction events are really the engine of life and have occurred five times in the past 440 million years?

Can you fathom what dangers lurk above from interplanetary asteroids and below from colossal volcanic hotspots? Explaining the ten-foot deposits of volcanic ash in Nebraska is easy when you know that, a thousand miles away, Yellowstone National Park once exploded with enormous fury. Furthermore, the biggest thing ever created on the continental U.S. was an impact crater in Mason, Iowa, that equated to a hole three miles deep and twenty miles across. Glad I missed that one!

Bryson also offers insight for understanding the origins of life and the rise of *Homo sapiens*. He further examines climate and the tumult of the past 100,000 years and considers that our future is equally unpredictable due to the interplay of natural forces. Not only does Bryson reveal the science, but he deftly places it within the nuanced context of the times, as the individual scientists come alive. While the likes of Newton are known to be idiosyncratic, the hubris of Hubble and Rutherford, the scientific thievery and underhanded conduct of Owen, the toil and under appreciation of Clair Patterson, the humility of Einstein, and the little know sweeping brilliance of Cavendish are generously revealed by Bryson. His comfortable prose is littered with humor as he quips about such things as "geologists (who) are never at a loss for paperweights," "volcanologists (who) may be the worst scientists in the world at making predictions," and as he describes "carbon (as) the party animal of the atomic world (that is) shamelessly promiscuous."

However, for all we do know about our world, Bryson reminds us that "The upshot of all of this is that we live in a universe whose age we can't quite compute, surrounded by stars whose distances we don't altogether know, filled with matter we can't identify, operating in conformance with physical laws whose properties we don't truly understand." This is a must-read for both the science student and teacher.

Teachers explore resources in university circle during the **Science + Reading** course

Science + Reading

A Professional Development course funded by the Martha Holden Jennings Foundation and taught by CRCST board members Renata Brown and Rowena Collins was held during the winter and early spring.
The course (offered to Pre-K - 3 public school teachers) improved teachers' awareness of many resources in university circle (see photo below) for science activities and reading in science areas. The course introduced the teachers to activites, generally focused on plants, from the GEMS curriculum and others that Renata has refined in her role as a Botanical Garden educator. The use of science trade books and appropriate web resources encouraged the teachers to incorporate science into their reading lessons.
Part of the course was done online and part involved face to face meetings. Credit was available through Ashland University. The course ended at the Spring Symposium and the participants gave very high thumbs up to the program and instructors in their evaluations.

Science in the News

Teachers share their views on how to improve education

From staff and wire reports

Mar 3rd, 2010 eSchool News

Teachers say administrative support, not more money, will motivate them to succeed.
In one of the largest national surveys of public school teachers, thousands of educators agreed that today's students aren't college-ready when they graduate from high school. Teachers' suggestions for solving this problem include clear, common standards; multiple measures of student performance; and greater innovation, including differentiated instruction and more use of digital resources.
The survey, titled "Primary Sources: America's Teachers on America's Schools," was commissioned by Scholastic Inc. and the Bill & Melinda Gates Foundation and conducted by Harris Interactive. More than 40,000 public school teachers in pre-kindergarten through 12th grade participated, and the results were released March 3.
The survey focused on the state of American education, the challenges facing students, and the tools and resources teachers need to face those challenges. Teachers gave honest opinions on issues such as student achievement, performance pay, technology use, and administrative support—and some of their answers might surprise school leaders.
"Teachers are a critical part of preparing our children for the future, and their voices are an essential addition to the national debate on education," said Margery Mayer, president of Scholastic Education, during a webcast to discuss the survey results.
The survey reveals that, while teachers have high expectations for their students, they overwhelmingly agree that too many students are leaving unprepared for success beyond high school. Teachers were nearly unanimous in saying that a high school diploma is not enough for today's students. Ninety-three percent of teachers said schools must prepare students for more than high school graduation; at the same time, 9 in 10 teachers said not all of their students could leave high school prepared to succeed in a two- or four-year college.
Also, only 16 percent of teachers "agree strongly" that students enter their classroom prepared for on-grade-level work.
"A lot of teachers find it difficult when student enter the classroom unprepared for their grade level," said Andrew Liss, a seventh-grade teacher at Thomas Jefferson Middle School in Edison, N.J., "because that means you have to take your foot off of the accelerator and stop and sometimes reverse. However, it's part of a teacher's

job to differentiate instruction and help those who fall behind."

"Even though states have standards, that doesn't mean every school's curriculum will be aligned with those standards," said Cate Dossetti, a teacher at Fresno High School in California. "It also comes down to: Are you teaching children vital skills, like critical thinking, that they can take with them throughout life, or are you teaching them a finite fact to know in order to fill in the correct bubble on a standardized test?"

Other survey findings debunk several commonly held myths about teachers' views.

For example, the survey found that while higher salaries are important, teachers said they are less important than a supportive leader. Fewer than half of teachers (45 percent) said higher salaries are absolutely essential for retaining good teachers. More teachers said it's essential to have supportive leadership (68 percent), time to collaborate (54 percent), and high-quality curriculum (49 percent).

"Let's be honest," said Dossetti, "no amount of money will ever compensate for wanting to go to work that day. For me, it's usually about how we support each other, how our administration supports us, and how much time is left for collaboration. And while extra money is great, right now performance pay doesn't yet know how to measure what makes a great-performing teacher; it's not just about standardized test grades—it's about how your students grow [from] day to day in all aspects of life."

Beth Prince, a kindergarten teacher at Hearst Elementary School in Washington, D.C., said supportive leadership is much needed in schools and motivates teachers.

"It's so important to involve teachers in the school processes and provide us with access to resources like professional development and collaboration. Also, give us a chance to work with the community and parents," she said.

"One of the biggest challenges we hear from teachers is finding a good principal," said Scholastic's Mayer. "A good principal supports teachers; what professional in any setting wouldn't want a supportive leader? Teachers needing supportive principals is no different that what any professional wanting to succeed wants."

The survey also revealed that teachers aren't opposed to standardized tests as one way to measure student performance. More than 80 percent of teachers said district-required tests are at least a somewhat important measure of student performance (84 percent).

Yet, these should be just one aspect of how students' success is measured, they said Other measures of success should include formative assessments, performance on class assignments, and class participation along with standardized tests.

"Teachers do value standardized tests, but not as a stand-alone measurement," said Vicki Phillips, director of education for College Ready at the Bill & Melinda Gates Foundation. "Standardized tests need to be mixed in with daily and local assessments as well."

Mayer said that while there must be accountability in the form of standardized testing, technology now makes it possible to capture student performance in real time, and this technology is needed to balance out single performance-based testing.

"We need more authentic testing for students, and technology makes that possible," she said. "Students can take their time, not feel so pressured, and have testing tailored to them."

Having tenure doesn't make a good teacher, survey respondents said: Only 10 percent of teachers said tenure is a very accurate measure of teacher performance, while 42 percent said it's not accurate. Student engagement and year-over-year progress of students are viewed as the most accurate indicators of teacher performance measures (60 percent and 55 percent, respectively, rated these as very accurate), but they are not frequently used to evaluate teachers.

Textbooks aren't the answer, either, teachers say. Just 12 percent of teachers said traditional textbooks help improve student academic achievement, and a mere 6 percent said textbooks engage students in learning. Eighty-one percent of teachers said up-to-date, information-based technology is very important or absolutely essential to improve student achievement.

According to Fresno High School's Dossetti, books are great and students can still enjoy

Cleveland Regional Council of Science Teachers

2010 Fall Conference

Saturday, October 16, 2010

Cleveland Metroparks Zoo

Tentative Schedule

7:30 – 8:00am	Registration, Continental Breakfast, Networking & Browsing Vendor Displays
8:15 - 9:05 am	Concurrent Session I
9:20 - 10:15am	**Keynote Address: Tim Harrison, Coming Soon...To a Backyard Near You: Exotic Pets**
10:15 – 10:30am	Annual Membership Meeting
10:45 - 11:35 am	Concurrent Session II
11:50 - 12:40pm	Concurrent Session III
12:40 - ???	Explore Vendors, Network with your colleagues.

Baldwin-Wallace College Seeks to Lead in Sustainability

Over the past two years, Baldwin-Wallace College has become a regional academic leader in the field of sustainability. In August 2008, it launched the midwest's first undergraduate, interdisciplinary major in sustainability. Now in its second year, the program has attracted approximately 40 majors, with considerable anticipated growth in the future. The program draws upon courses in the sciences, social sciences, humanities and business to provide the student with a breadth of knowledge necessary to understand and help to solve the century's most critical sustainability problems. The major also includes a mandatory internship, which places students in corporations, nonprofits, and governmental organizations engaged in sustainability work. For more information, see BW's website: http://www.bw.edu/academics/sustainability/.

The college has also worked hard to "walk its talk." It is the first college in Ohio to provide a geo-thermal heated and cooled residence hall. In addition, on-campus biodiesel fuel production takes used kitchen grease for use in campus vehicles. A large industrial composter takes most of the college's food waste out of the waste stream for use on flower beds. Their first wind turbine was installed in November, 2009. Solar panel arrays are the next innovation anticipated for large scale use on the campus's newest building which, when combined with geo-thermal heating and cooling could make the building a net producer of clean energy.

This year, the college launched a new Institute for Sustainable Business Practice that engages in outreach and education partnerships with local companies: http://www.bw.edu/academics/sustainability/business-practice/. A new MBA in sustainability is in the design phase, with a hoped-for launch later this year.

On March 1-2, the college hosted its second Sustainability Symposium on the topic of climate and carbon: http://www.bw.edu/academics/sustainability/symposium/. Our next symposium is scheduled for April 2011 on the theme "Sustainable Innovation: Products, Processes, and Services".

For more information about any of these initiatives, please contact David Krueger (dkrueger@bw.edu) or Sabina Thomas (sfthomas@bw.edu), co-directors of the sustainability program.

them, but adding technological resources enhances the learning experience.

"For example, I have my students read a book, then ask them to go onto Ning and have a discussion about their reading when they get home," she said. "Technology can really extend the day and make books and textbooks more interactive and engaging."

"Not all textbooks are bad," said Liss, "but there are certainly other options to engage students. The trick when using technology is not to lose focus of the learning objective. Sometimes you see teachers and students using this and that technology for a project and they get too caught up in the technical aspects; you can't lose focus of what it is you're really trying to get your students to learn."

The survey also showed that a teacher's job doesn't end at 3 p.m. Seven of 10 teachers said they attend their students' after-school and weekend events. More than half (51 percent) of elementary school teachers are willing to have parent-teacher conferences at students' homes, indicating their understanding of time-strapped parents and their belief in the importance of helping every child have a strong home-school connection.

Solutions

Besides voicing their opinion on the challenges that education is facing, teachers also gave their opinions on solutions to those challenges.

The survey identifies five solutions given by teachers:

1. Establish clear standards, common across states. Nationwide, 74 percent of teachers said clearer standards would make a strong or very strong impact on student achievement, with only 4 percent saying they would have no impact at all. Sixty percent said common standards would have a strong or very strong impact on student achievement, and only 10 percent said they would have no impact at all.

2. Use multiple measures to evaluate student performance. Ninety-two percent of teachers said ongoing in-classroom assessment is either very important or absolutely essential in measuring student performance, while only 27 percent said the same of state-required standardized tests.

3. Innovate to reach today's students. More than 90 percent said differentiated assignments are absolutely essential for improving student achievement and engaging students in learning. Also, 81 percent of teachers reported that current information-based technology that is well integrated into the classroom is absolutely essential or very important in raising student achievement.

4. Accurately measure teacher performance, and provide non-monetary rewards. Only 22 percent of teachers indicated that principal observation is a very accurate measure of their effectiveness. Yet, more than half of teachers said that student academic growth (60 percent) and student engagement (55 percent) are very accurate measures of teacher performance. Fewer than half of teachers said higher salaries are absolutely essential for retaining good teachers, and only 8 percent said pay-for-performance is absolutely essential.

5. Bridge school and home to raise student achievement. Eight of 10 high school teachers (81 percent) attend students' after-school and weekend events, and more than half of elementary school teachers are willing to have parent-teachers conferences at students' homes.

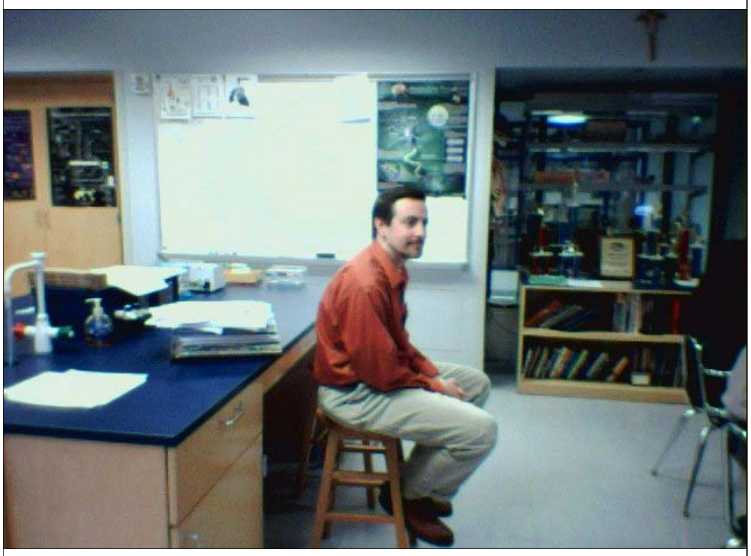
"'Primary Sources' tells us that teachers see a need for stronger curriculum that relates to the real world, clear academic standards from grade to grade, and reliable data on student learning," said the Gates Foundation's Phillips. "The survey tells us that what's good for students and student achievement is good for teachers, too—in fact, it's what they want."

"The survey results are significant and come at a time when there is far too much scapegoating of teachers by those who ought to know better," said Randi Weingarten, president of the American Federation of Teachers, in a statement. "Teachers are willing to go the extra mile to help students succeed, but they need tools, time, trust, and support to do their jobs well. As the survey shows, teachers know better than most what students need and feel strongly that they must be a real partner with school leadership in designing improvement plans."

According to the survey's sponsors, every state was represented in the survey, and at every grade level. Participants ranged from those who teach in one-room schools in rural communities to those in affluent suburbs and large urban districts. Teachers of English-language learners and special-needs students also are represented.

The study's size and scope allows for analysis of teachers' views by grade, income level, years of experience, and more. The report also provides an in-depth look at state-by-state data, revealing differences in teacher views from one state to another.

The survey was conducted by phone and online from mid-March to mid-June 2009.



CRCST President Mark Waner enjoys the discussion at the Spring Symposium at St. Ignatius HS

Teaching Secrets: 10 To-Dos for New Teachers

By Marsha Ratzel May 5, 2010

Premium article access courtesy of Teacher-Magazine.org.

College commencements are in the air, and while the thoughts of some new teacher graduates are no doubt turning to the beach or summer jobs, other freshly minted educators are already envisioning their first classrooms full of students, each with his or her own special learning needs.

It's an exciting but also anxious time, as the experienced professionals in the Teacher Leaders Network know well. So for those early birds lucky enough to have found a teaching position in the current down-sized economy and eager to begin, we offer our first Teaching Secrets article of 2010, tailored to the particular needs of new teachers in the "tween" grades.

Ratzel's Top 10 To-Do List for New Teachers Starting School:

1. Find your curriculum and read through it several times. Put Post-it notes in places where you have questions. Work with the principal to partner with an experienced teacher at least several weeks before school starts to get an overview of the entire year and do serious scrutiny of the first month's goals.

2. Find all your supporting materials, both student and teacher copies. Know where and how the curriculum and the textbooks match up in a general sense. Do a more thorough matching for the first unit, so you'll know exactly where and what you'll be using. Be sure to scan through all the supplemental materials that most publishers provide. This can be overwhelming at the level of fine detail, so go for the big picture snapshot. You can come back later when you see a need, once you have some working knowledge of the possibilities.

3. Ask to look over last year's yearbook. It's a great place to see the kinds of activities that are important to your new school community. The faculty pictures and names will be there, too. If the school has a student newspaper, that's another source for developing a sense of the school identity.

4. Create a birthday list for each class (celebrate half-birthdays for summer birthdays, six months from the actual date). Decide what small thing you might do to honor each child. Maybe it is a B-Day postcard you send home. Maybe it's a Free Homework Pass. Maybe it's a Birthday Pencil. Take the list and group birthdays by month and get everything ready to go for the whole year. Since I use Homework Passes, I put student names and the birthday date on each pass, then hand them out with

some ceremony at the start of each month.

5. Develop some sort of impartial method for calling on students during class. Assigning student numbers and then randomly picking a number works well. You can put the numbers on craft sticks or ping pong balls (some gradebook programs have a student picker option). You may be able to number the desks and call on the student sitting in that desk. However you do it, you're demonstrating a method that removes bias and gives all students an equal chance to be asked.

6. Figure out how you will capture students on the first day of school. Going over the rules or what they'll be learning is *not* the way. Think of some easy-to-implement, highly engaging activity to snag their interests and build a bridge between you and them. (You can find many ideas on the Web.) I always try to give them a sense of who I am, my sense of humor, and what I love about my job and them. This helps students relax and realize you are their ally, their partner, their facilitator…not the enemy. The activity has to be structured, though, or it could descend into chaos. It's a fine balance—so ask around and see what has worked in the past for other teachers.

7. Design some method to manage and keep track of daily paperwork, especially for absent students. If you have all of your students regularly asking you for their missed work assignments, you'll lose your mind. There are so many options out there. My favorite is to have a hanging folder for each student in every class. If I pass out papers, the student at the front of each row is responsible for filing the handouts in the appropriate folder for every absent student in that row. When the student returns they know they can look in their folder for all their work.

8. Make an appointment to sit down with important building specialists. If your building has a staffed library, see if you can meet with the library media specialist to find out how you can best utilize their resources. Even if the discipline you are teaching doesn't seem to require library resources, you will be amazed at the things that are possible and available if you only ask.

9. Introduce yourself to the school secretaries, the nurse, the bookkeepers and the paraprofessionals. Most importantly, find out who is going to clean your room and make sure to start building a close relationship with them. Friendliness leads to cleanliness!

10. Decide where and when you will fight your battles with the kids. Gum chewing, talking, a failure to bring pencil and paper to class—these are all potential danger zones. Pencils used to be a constant battle for me. Now I just buy about 1,000 of them during the Back to School supply sales for $5.00. It's the best $5.00 I could ever spend. Your rules must adhere to district/school policies *and* be supported by your fellow teachers. But that still leaves lots of latitude. For example, our policy leaves gum chewing up to the discretion of each teacher. This can be tricky as students move through the day. When it comes to potentially conflicting policies, teachers need to know where they stand (vis a vis other teachers) before something becomes an issue with a student.

These straightforward, practical tips can help you get off to a good start by smoothing the path to the destination you care about most—teaching well. Start thinking, planning and preparing now, and you'll get there.

Author Marsha Ratzel teaches middle school math and science in Blue Valley, Kansas, where she has also served as a district-wide technology and curriculum coach. She's National Board-certified and began her (so far) 18-year teaching journey after a first career in health care administration. Marsha's 10 practical ideas can help novice educators better prepare for the first day of school and a successful year.

—

John Norton, TLN moderator

Marsha Ratzel blogs about teaching practice and policy at ***Reflections of a Techie****. For more advanced new-teacher tips, see her 2008 article,* ***"The Parent Meet and Greet."***

Happy 20th, Hubble from *Science News*

When NASA announced in 2004 that it was canceling a final mission to repair the then-ailing Hubble Space Telescope--effectively a death sentence--the agency received a letter from a 9-year-old girl who wanted to donate her lunch money to save Hubble. That letter, among countless others, exemplifies the public's love affair with the observatory, which turns 20 years old this month.
Since its launch on April 24, 1990, Hubble has repeatedly risen from the ashes to produce pictures of unparalleled clarity and beauty. The observatory has recorded nearly a million images and spectra in about 110,000 trips around the Earth.
Among its cosmic postcards--some of the best in the pages to follow--Hubble has caught bruises left on Jupiter by fragments of a comet, elderly stars gift-wrapped in shells of glowing gas, the slender arms of spiral galaxies and nebulae ablaze with the light of newborn stars. http://snipr.com/v7r8g

Human Genome at 10 from *National Geographic News*

In June 2000 scientists joined U.S. President Bill Clinton at the White House to unveil the Human Genome Project's "working draft" of the human genome--the full set of DNA that makes us human. As the tenth anniversary of that achievement approaches, scientists weigh in on the scientific discoveries the Human Genome Project enabled, as well as some hopes and predictions for future advances that could be made using the project's data. *National Geographic* looks at five breakthroughs powered by the Human Genome Project and five predictions for the next 10 years. http://snipr.com/v7r8k

Prostate Drug May Work as a Preventive from the *Los Angeles Times* (Registration Required)

Men at an above-normal risk of prostate cancer may be able to reduce their risk of developing the disease by taking a drug already on the market.
In research reported Wednesday, the drug dutasteride, currently used to shrink enlarged prostates, was found to reduce the risk of prostate cancer by about a quarter in high-risk men. The medication, sold under the brand name Avodart, apparently caused small tumors to stop growing or even to shrink, researchers reported in the *New England Journal of Medicine*.
A previous study found that a similar drug, finasteride, could also lower the risk of prostate tumors, but the new research--conducted at 250 sites in 42 countries--suggests that dutasteride is slightly more effective. http://snipr.com/v7r8y

White House Mandates New Fuel Efficiency Standards from the *Washington Post* (Registration Required)

The Obama administration finalized the first national rules curbing greenhouse gas emissions Thursday, mandating that the U.S. car and light-truck fleet reach an average fuel efficiency of 35.5 miles per gallon by 2016.
The new fuel efficiency standards ... represent a peaceful end to a contentious legal battle over how to regulate tailpipe emissions. At a time when it remains unclear whether Congress can pass climate legislation this year, the new rules also mark the White House's most significant achievement yet in addressing global warming.
In a speech Wednesday, President Obama said the standards "will reduce our dependence on oil while helping folks spend a little less at the pump." He estimated that tougher Corporate Average Fuel Economy (CAFE) requirements will save 1.8 billion barrels of oil over the life of vehicles sold under the program covering the 2012-16 model years. He said this would be the equivalent of taking 58 million cars off the road for a year. Environmentalists hailed the move, saying it will transform the American auto market in the years to come. http://snipr.com/v7r93

Industry Wary of New Rules on Fishing from the *Boston Globe* (Registration Required)

The federal government finalized the most fundamental changes in New England fishing rules in more than a generation Wednesday, over the strenuous objections of many fishermen who say they will be put out of business.
The new rules, which take effect May 1, come after years of effort by the federal government and environmental groups to stop overfishing of the region's fabled cod, flounder, and other bot-

tom-dwelling species that once were said to be so plentiful that colonists caught them simply by lowering baskets into the sea.
The rules encourage boat owners to organize into groups that will be allocated a share of the annual quota for each species, and already fishermen who account for the vast majority of the catch in New England have voluntarily formed groups, called sectors. The system is designed to give fishermen more financial incentive to be good stewards of the sea and more flexibility in deciding who fishes and when, such as allowing fishermen to avoid bad weather.
http://snipr.com/v7r9f

Study Suggests Toads Can Detect Coming Earthquakes
from the *San Diego Union-Tribune* (Registration Required)

LONDON (Associated Press) -- When it comes to predicting earthquakes, toads--warts and all--may be an asset. British researchers said Wednesday that they observed a mass exodus of toads from a breeding site in Italy five days before a major tremor struck, suggesting the amphibians may be able to sense environmental changes, imperceptible to humans, that foretell a coming quake.
Since ancient times, anecdotes and folklore have linked unusual animal behavior to cataclysmic events like earthquakes, but hard evidence has been scarce. A new study by researchers from the Open University is one of the first to document animal behavior before, during and after an earthquake.
The scientists were studying the common toad--bufo bufo--at a breeding colony in central Italy when they noticed a sharp decline in the number of animals at the site. Days later, a 6.3-magnitude earthquake hit, killing hundreds of people and badly damaging the town of L'Aquila. http://snipr.com/v7ra0

Research Offers Promise for Diabetics from the *Los Angeles Times* (Registration Required)

Boston researchers have made a major step toward the development of an artificial pancreas that overcomes the bugaboo of most previous such attempts--dangerously low blood sugar caused by injection of too much insulin.
Their experimental device secretes two hormones normally produced by the pancreas--insulin and its counterbalancing hormone, called glucagon--and has been shown to control blood sugar levels in about a dozen people for at least 24 hours, they reported Wednesday. The team is now planning longer trials as they gear up for what they hope will be approval by the Food and Drug Administration in as little as seven years.
"This is a very important proof-of-concept study," said Dr. Irl B. Hirsch, an endocrinologist at the University of Washington School of Medicine, who was not involved in the research. "It was becoming obvious that if we were ever going to get [an artificial pancreas], we would have to use both hormones. ... The fact that they have been able to do so successfully is very big and very exciting news."
http://snipr.com/vi38t

Bill Seeks to Overhaul U.S. Chemical Laws
from the *Washington Post* (Registration Required)

After a year of working with environmental groups, government regulators and the chemical industry, a leading advocate for chemical regulation has devised a plan to remake the nation's chemical laws--a 34-year-old set of regulations that all players agree is outmoded and ineffective.
The plan, contained in legislation that Sen. Frank Lautenberg (D-N.J.) is set to file Thursday, would require manufacturers to prove the safety of chemicals before they enter the marketplace. That would be a significant departure from current laws, which allow chemicals to be used unless the federal government can prove they cause harm to health or the environment.
"We're saying those who make the chemicals--and there are 700 new ones that come to market each year--ought to be responsible for testing them first before they're released to the public, instead of having the EPA play detective to search and try to find problems," Lautenberg said. The bill would also mandate that manufacturers submit health and safety data to the EPA for 84,000 chemicals in use. The agency would review the information to determine whether the chemicals are safe enough to remain on the market. http://snipr.com/vi3fk

"Biggest" Comet Measured from *National*

Geographic News

The Great Comet of 2007 made an even bigger impression on the solar system than anyone realized, according to a new study that measured the size of the comet's wake. In January 2007 people around the world watched comet McNaught streak across the sky. The visible tail was about 35 degrees long, or roughly the same apparent size as 70 full moons lined up in the night sky.
By chance, the European Space Agency's Ulysses spacecraft plowed through the width of the comet's tail in February 2007. Designed to study the sun's atmosphere, the probe was able to record information on how the comet's passage affected the solar wind, which is actually charged particles constantly streaming from the sun. http://snipr.com/vi3gi

Physicists Untangle the Geometry of Rope
from *Science News*

Researchers have unraveled the mathematics that keeps ropes from unwinding. The trick lies in the number of times each strand in a rope is twisted, say J.Bohr and K. Olsen, physicists at the Technical University of Denmark in Lyngby. The paper was posted April 6 at arXiv.org.
In a traditional rope, each individual strand is twisted as much as possible in one direction. The twisted strands are then wound together in a spiral shape called a helix, which rotates in the opposite direction. The interlocking of these twists and countertwists gives the rope strength so that when yanked, it does not unwind.
By plotting a rope's length against the number of twistings in each strand, Bohr and Olsen discovered that there is a maximum number of times each strand can be twisted--resulting in what they call the "zero-twist point" for the overall rope. http://snipr.com/vi3hc

The Cost of Scientific Misconduct
from *Seed…*

How does the research community respond to a retraction? Janet Stemwedel, an ethicist at San Jose State University, discusses one such study at her blog, Adventures in Ethics and Science. A team led by Anne Victoria Neale examined 102 cases where published research articles involved fraud or misconduct.
Their study was published in *Science and Engineering Ethics* in 2007. While nearly every article was either retracted or corrected, Neale's team wanted to know if the articles had an influence on other research. They found that an astonishing 5,393 articles cited those reports!
Stemwedel points out that Neale and her fellow researchers didn't analyze those articles for context: It could be that citations of the fraudulent or unethical work were made in order to show that the research couldn't be replicated. http://snipr.com/vi3i6

Researchers ID Alzheimer's Risk Gene from the *Miami Herald* (Registration Required)

University of Miami researchers have identified a gene that appears to double a person's risk of developing late-onset Alzheimer's disease. They called the finding a small step toward understanding and fighting the debilitating disease, which affects five million Americans.
"I hope that in the next five to 10 years we can see major improvements--a combination of therapies and prevention through exercise, both physical and mental, diet and other things," said Margaret Pericak-Vance. She is director of the John P. Hussman Institute for Human Genomics at the UM Medical School and principal investigator in the study.
The study was presented at the 62nd Annual Meeting of the American Academy of Neurology . Finding the gene "will help us better understand how this disease develops and potentially serve as a marker for people who may be at increased risk," said Adam Naj, an author of the report, who works at the Hussman Inst. http://snipr.com/vi3j5

Panel Clears Researchers in 'Climategate' Controversy
from the *Los Angeles Times* (Registration Required)

Climate change researchers accused of manipulating or hiding data in last year's "Climategate" affair were guilty of sloppy record-keeping, not bad science, an independent panel concluded.
Allegations that the researchers deliberately misrepresented data to promote the idea of human

-caused global warming rocked the scientific community in November, just as world leaders were preparing for an international environmental summit.
The allegations, by skeptics of climate change, were based on e-mails hacked from the University of East Anglia in eastern England, including one in which a scientist wrote of using a "trick" to mask an apparent decline in recent global temperatures. But a panel of experts tasked with examining the underlying science said it "saw no evidence of any deliberate scientific malpractice in any of the work" by the university's Climatic Research Unit.
http://snipr.com/vi3kh

'Very Little Progress' Made Against Hospital Infections from *USA Today*

WASHINGTON (Associated Press) -- The nation's hospitals are failing to protect patients from potentially fatal infections despite years of prevention campaigns, the government said Tuesday.
The Health and Human Services department's 2009 quality report to Congress found "very little progress" on eliminating hospital-acquired infections and called for "urgent attention" to address the shortcomings--first brought to light a decade ago.
Of five major types of serious hospital-related infections, rates of illnesses increased for three, one showed no progress, and one showed a decline. As many as 98,000 people a year die from medical errors, and preventable infections--along with medication mixups--are a significant part of the problem. http://snipr.com/vi3la

Japanese Whale Meat 'Being Sold in US and Korea' from *BBC News Online*

Scientists say they have found clear proof that meat from whales captured under Japan's whaling programme is being sold in US and Korean eateries. The researchers say they used genetic fingerprinting to identify meat taken from a Los Angeles restaurant as coming from a sei whale sold in Japan.
They say the discovery proves that an illegal trade in protected species still exists. Whale meat was also allegedly found at an unnamed Seoul sushi restaurant. Commercial whaling has been frozen by an international moratorium since 1986.
But a controversial exemption allows Japan to kill several hundred whales each year for what is termed scientific research. The meat from these whales is then sold to the public in shops and restaurants in that country. http://snipr.com/vi3mk

Europe Finds Clean Energy in Trash, but U.S. Lags
from the *New York Times* (Registration Required)

HORSHOLM, Denmark -- The lawyers and engineers who dwell in an elegant enclave here are at peace with the hulking neighbor just over the back fence: a vast energy plant that burns thousands of tons of household garbage and industrial waste, round the clock.
Far cleaner than conventional incinerators, this new type of plant converts local trash into heat and electricity. Dozens of filters catch pollutants, from mercury to dioxin, that would have emerged from its smokestack only a decade ago.
In that time, such plants have become both the mainstay of garbage disposal and a crucial fuel source across Denmark, from wealthy exurbs like Horsholm to Copenhagen's downtown area. Their use has not only reduced the country's energy costs and reliance on oil and gas, but also benefited the environment, diminishing the use of landfills and cutting carbon dioxide emissions.
http://snipr.com/vm6uk

Hobbit Debate Goes Out on Some Limbs
from *Science News*

ALBUQUERQUE -- Two fossil hobbits have given what's left of their arms and legs to science. That wasn't enough, though, to quell debate over hobbits' evolutionary status at the annual meeting of the American Association of Physical Anthropologists on April 17.
Since 2004, the discoverers of unusual "hobbit" fossils on the Indonesian island of Flores have attributed their find to a pint-sized species, *Homo floresiensis*, that lived there from 95,000 to 17,000 years ago. These researchers also suspect, on the

basis of hobbit anatomy and recent stone tool discoveries on Flores, that *H. floresiensis* evolved from a currently unknown hominid species that migrated from Africa to Indonesia more than 1 million years ago.
Critics say the finds represent nothing more than human pygmies like those still living on Flores. In their opinion, the centerpiece hobbit find--a partial skeleton of an adult female known as LB1--is what's left of a woman who suffered from a developmental disorder that resulted in an unusually small brain and a misshapen skull and lower body. But arm and leg fossils from LB1 and a second hobbit appear robust, not unhealthy, according to a new study directed by William Jungers of Stony Brook University in New York.
http://snipr.com/vo26u

Rig Explosion Shows Risks in Key Oil Frontier
from *National Geographic News*

Just last September, the operator of the semisubmersible rig known as the Deepwater Horizon announced it had succeeded in drilling the deepest oil well in history. Operating in 4,130 feet of water, the rig had drilled six miles eneath the sea floor to reveal a major petroleum find, the Tiber Prospect, for the giant oil company BP.
Now, authorities are trying to learn what went wrong on the platform, where an explosion left at least three people critically injured and 11 more missing as of Thursday. Rig operator Transocean Ltd. said 115 workers were evacuated safely, but the fire burned long after the blast, apparently fed by the flow of oil or gas hydrocarbons. The company said the investigation of the incident 41 miles off the shore of Louisiana could take weeks.
The mishap was a reminder of the dangers inherent in offshore oil operations at a time when the fields of crude deep under the sea are seen as the industry's most important frontier--one where companies like Transocean and BP have aimed to push the boundaries of exploration.
http://snipr.com/vpx7v

Hubble's New Instant Classic from *Science News*

With a smorgasbord of heavenly images and celestial targets to choose from, it wasn't easy picking a portrait to celebrate the Hubble Space Telescope's 20th anniversary. But after a debate that began last year, Hubble astronomers finally settled on taking a new, close-up portrait of part of the Carina nebula, a dramatic star-forming region that Hubble first captured in 2007 with a less sophisticated camera.
"We wanted to have an image that will be at least as spectacular as the iconic 'pillars of creation,'" says Mario Livio of the Space Telescope Science Institute in Baltimore, referring to a widely reproduced 1995 Hubble image of the Eagle Nebula. "This particular image can arguably be called 'Eagle Nebula on steroids,'" notes Livio, who led the new observations. The anniversary image "not only shows a region of gas and dust rich in shapes, ionizing radiation, the sculpting effect of radiation and stellar winds, but it also contains two very impressive jets." NASA released the image April 22 to commemorate the 20th anniversary of Hubble's launch on April 24, 1990.
http://snipr.com/vpxct

Ocean Acidification Rising at Unprecedented Rate
from the *Miami Herald* (Registration Required)

WASHINGTON -- With the oceans absorbing more than 1 million tons of carbon dioxide an hour, a National Research Council study released Thursday found that the level of acid in the oceans is increasing at an unprecedented rate and threatening to change marine ecosystems.
The council said the oceans were 30 percent more acidic than they were before the Industrial Revolution started roughly 200 years ago, and the oceans absorb one-third of today's carbon dioxide emissions. Unless emissions are reined in, ocean acidity could increase by 200 percent by the end of the century and even more in the next century, said James Barry, a senior scientist at the Monterey Bay Aquarium Research Institute in California and one of the study's authors.
"Acidification is changing the chemistry of the oceans at a scale and magnitude greater than thought to occur on Earth for many millions of

years and is expected to cause changes in the growth and survival of a wide variety of marine organisms, potentially leading to massive shifts in ocean ecosystems," Barry told the Senate Commerce Committee's Oceans, Atmosphere, Fisheries and Coast Guard Subcommittee on Thursday.
http://snipr.com/vpxg6

New Species Discovered in Borneo

from the *Guardian* (UK)

An enormous stick insect more than half a metre long and a bizarre lungless frog are among a staggering collection of new species highlighted Thursday to celebrate an agreement to conserve wildlife on the island of Borneo. Conservationists say the weird and wonderful creatures were discovered thanks to a pioneering deal between three governments to protect and conserve 220,000 square kilometres of lush rainforest on the island. Some 123 new species have been recorded in the protected region, known as the "Heart of Borneo," since the 2007 agreement.
They include a vivid flame-coloured bronzeback snake that can flare the back of its neck to reveal bright orange colours when threatened, a new bird named the spectacled flowerpecker, and a green and yellow slug with a tail three times the length of its head.
http://snipr.com/vspj9

Engaged Teachers in the CRCST Professional Development Course **Science + Reading**

Opportunities for Students and Teachers

National Science Foundation (NSF) News - Scientists Find Signs of a “Snowball Earth”
http://www.nsf.gov/news/news_summ.jsp?cntn_id=116410&WT.mc_id=USNSF_51&WT.mc_ev=click

Methane Releases From Arctic Shelf May Be Much Larger and Faster Than Anticipated
http://www.nsf.gov/news/news_summ.jsp?cntn_id=116532&WT.mc_id=USNSF_51&WT.mc_ev=click

NASA unveiled an interactive computer simulation that allows virtual explorers of all ages to dock the space shuttle at the International Space Station, experience a virtual trip to Mars or a lunar impact, and explore images of star formations taken by the Hubble Space Telescope.
NASA Launches Interactive Simulation of Satellite Communications

Paleontologists announced the discovery of a dinosaur-like animal living 10 million years earlier than the oldest known dinosaurs. The researchers suggest that dinosaurs and other close relatives might have also lived much earlier than previously thought. The description of the new species *Asilisaurus kongwe* appears in the March 4 issue of the journal *Nature* in a paper lead-authored by Sterling Nesbitt, a University of Texas at Austin postdoctoral researcher.
Full story at http://www.utexas.edu/news/2010/03/03/geosciences_dinosaurs/

LSU professors Yiping Lou and Pamela Blanchard in the department of educational theory, policy and practice have developed a program that showed an average 12 percent increase in student science inquiry skills. The project, called *Pathways to Inquiry*, was funded by the NSF and aids teachers and students in analyzing and building science inquiry skills through evidence-based practice.
Full story at http://appl003.lsu.edu/unv002.nsf/9faf000d8eb58d4986256abe00720a51/a2b0568da8eb718b862576ea0063d576?OpenDocument

The BBC video "*Darwin: The Tree of Life*"(2009), narrated by David Attenborough discusses; Darwin's observations in South America and the Galapagos, Darwin's religious dilemma (his wife Emma was devout), theory of intelligent design, Alfred Russell Wallace, Gregor Mendel, cephalization, mass extinction, protobionts, Lyell and gradualism, carbon dating, Marie Curie, etc. all in a very engaging way (after all, its Attenborough).
http://video.google.com/videoplay?docid=1589429273035937450#

New research by a team of ecologists and hydrologists shows that water temperatures are increasing in many streams and rivers throughout the United States. The research, published in the journal *Frontiers in Ecology and the Environment*, documents that 20 major U.S. streams and rivers--including such prominent rivers as the Colorado, Potomac, Delaware and Hudson--have shown statistically significant long-term warming.
http://www.umces.edu/watertemp.html

The Cleveland Museum of Natural History has scholarships available for both **Junior Medical Camp and Circle Sampler Camp**. To be eligible, students must qualify for free or reduced lunches and have an interest in science and/or a curious mind. A brief evaluation by a teacher or principal is required as well.
JMC scholarships are for children entering 3rd through 10th grade and CSC scholarships are for PUBLIC school children entering 1st through 6th grades. While preference will be given to children in the CMSD or East Cleveland school districts, we will award scholarships to other district youth as well.
To learn more about our camps, please visit the following website:
http://www.cmnh.org/site/ClassesandPrograms/SummerCamps.aspx
The scholarship application can be found there as well. If you need hard copies, please do contact me. I hope that you will pass them on to worthy students.
If you have any questions, please contact Bethany Sandvik at 216-231-4600 x 3214 or bsandvik@cmnh.org

Resources on Climate Literacy:
http://www.eoearth.org/article/Climate_Literacy_Handbook

http://www.climate.noaa.gov/index.jsp?pg=/education/edu_index.jsp&edu=literacy

Common Misconceptions from *The Pathetic Fallacy:*
http://www.ems.psu.edu/~fraser/Bad/PatheticFallacy.html

I am Chuck Hanley, one of the coordinators for the ASSET Program at Cornell University. We are funded by the SEPA program of the NIH and mandated to provide teaching materials to biology and environmental science teachers. We are offering curriculum modules based on the ciliated protozoan, Tetrahymena. The modules are short in length and cover topics from phagocytosis to micro-evolution. We provide everything needed. We are offering our first free workshop for teachers this summer. For more info check out the website at <http://asset-program.vet.cornell.edu> or contact my colleague who coordinates that program, Fern Lan Siew at fls6@cornell.edu.

My job is to encourage Social Studies teachers to talk about the relationship between democracy and science in their Government and US history classes, and thus prepare future citizens for the most scientific century in history. Info on these modules is available at the web page at this link Biology and Society Modules. I am writing to ask for your help. I am looking for Social Studies teachers, that you work with, who might be willing to pilot these modules, and who might especially be willing to work with you on an interdisciplinary basis. Please forward this message to them, or have them contact me at cjh252@cornell.edu. You might also find one or two of these modules of interest in your own classes.

Photos from the Spring Symposium held at St. Ignatius High School

Nancy Hughes presents information about sustainability programs at the Zoo

Emmett Keller from Garrett Morgan School talks about his students' sustainability efforts

Mary K Evans, Vicki Searles & Tess Wearsch (2) present ideas to the High School attendees (clockwise from top left)