

**.....from the Editor**

Norm Schmidt

There are so many critical issues in our area, state, nation and the world that it is hard to choose one item for my final editorial as the CRCST editor. So, I will choose some items and give them each a few words that may strike a note with some of you, maybe all of you.

**World:**

1. The population of humans continues to rise and the population of many other organisms goes down, often as a direct result of human fecundity.

Availability of fresh water will likely lead to lots of chaos. Food production will be a problem and many still have real doubts about the importance of genetically modified (GM) crops. GM crops are not a health hazard nor are they an ecological disaster. The solution to the population explosion is education. Especially the education of young women.

Young women that have had the advantage of an education are more likely to delay child bearing and ultimately have fewer children.

2. The oceans continue to be a dump for our rubbish, especially long lasting plastics that have broken down into tiny toxic particles that are ingested by a variety of organisms leading to their death or in some cases biomagnification in food chains. The solution involves a myriad of problems including

overfishing, use of plastic (make a product that will last centuries and use it as a disposable package), ignorance of life cycles of fish (some may not begin to reproduce until they are decades old and we catch them young). I use a crib sheet from the Monterey Bay Aquarium when I get fish at the market or a restaurant. Get yours at: [http://www.montereybayaquarium.org/cr/cr\\_seafoodwatch/content/media/MBA\\_SeafoodWatch\\_MidwestGuide.pdf](http://www.montereybayaquarium.org/cr/cr_seafoodwatch/content/media/MBA_SeafoodWatch_MidwestGuide.pdf)

3. Global Warming - We're pretty much screwed.

**Nation, State & Local:**

4. The push to make renewable energy a national priority and the continued reliance on fossil fuels. Do you think that another BP-type incident is likely? Does mountain top removal and all the associated ecological problems with that type of coal mining bother you? Why can't we put photovoltaic panels on those ugly sound barriers along our highways?

5. Close the Chicago River canal system so that the Asian Carp do not get into the Great Lakes and especially into Lake Erie where they would likely prosper. Instead of making more studies, close it. Build a rail system to move the materials from the Lake Michigan side to the Western side. This would create some jobs and keep these aliens out. There is no good reason to delay this longer, unless you are making lots of money through the shipping of goods through this canal. This makes eco-terrorism seem reasonable. **See Pg. 2**



**Presidential Column**

Renata Brown, President



I love science fairs. I love the memories of doing the research and I love judging them. So it was with great pleasure I saw the focus of the November issue of NSTA's

journal for secondary science teachers, *The Science Teacher*, was science fairs.

My dad is a chemist so that may be one reason I have fond memories of working on my projects. My first science fair was in fourth grade and I grew marigolds from seed and gave varying amounts of fertilizers to them to determine "how much was enough?" I basically overwatered all of them, and probably didn't give them enough light, but I loved measuring and charting the progress (or lack thereof) of their growth every day.

My most memorable project was in eighth grade. I used dad's lab to test the effectiveness of several antacids, such as Tums, Roloids, and Maalox. I dissolved each product in distilled water and added an indicator. I then titrated acetic acid into each solution until it turned pink, then charted how much acid each took to turn color. My project was called "How Do YOU Spell Relief?" I think the poster board is still in the closet at my parents' house in case you would like to see it.

Yes, for educators, parents and stu-

dents science fairs can be a lot of work. But there is much goodness about them. They are real, they are inquiry, they are creative. And they are disappearing. Fewer entries each year are blamed on time constraints, end of course tests, emphasis moved away from teaching science, and others. Are your students going to participate?

Science fair season is upon us. It is time to start preparing students for them and the articles in this magazine can help you do it. Articles titled "The Science Fair: A New Look at an Old Tradition," and "What Students *Really* Think About Doing Research" may inspire and motivate you.

I've just begun my term as president of CRCST and I hope to encourage participation in the Northeast Ohio Science and Engineering Fair (NEOSEF) in March at Cleveland State. Their website <http://www.neosef.org/> has great resources and information about eligibility, awards, regulations and more. CRCST always gives several awards to middle school students and I can't wait to see what they have in store for us this year. Let us know if CRCST can assist you in preparing for it!

### **Editorial Continued**

6. Plastic, plastic and more plastic.
7. The use of fireworks to poison the air and water. This is a strange way to celebrate just about everything. What's wrong with laser light shows?
8. Politicians that deny evolution, global warming and have the audacity to decry intellectuals.
9. The failing infrastructure for sewage disposal. We must improve and protect our rivers & lake even if it costs a lot. We simply cannot afford to pass these problems on to our descendants. I attended a meeting in Parma when the folks from the Sewage dept. were explaining the new construction needed to insure the reduction of wastewater flowing into rivers, streams and the lake. The EPA delayed insisting on improvements for for years. The delay has ended and the price for doing the work is steep. But we certainly saw the need for the work this year with the record precipitation dumping enormous amounts of waste into the lake. In Parma the outrage at the cost was palpable. Apparently these folks all fish for 'brown trout'.
10. Make littering and doing graffiti a capitol crime.

I want to thank my fellow CRCST board members for wrestling the Newsletter Editor responsibility from me. I told them I wanted to keep doing this job until I leave for my final green resting place. (I'm kidding) Renata Brown, Amanda Whitener and John Milam will be your new Quarterly Editors. Thank you . . . a lot!

## **Science in the News**

### **NOVA SPARK Education Newsletter**

#### **Are We Alone?**

New planets beyond our Solar System are being discovered almost daily. With the count at this moment [standing at almost 700](#), are scientists on the verge of answering one of the greatest questions in history: Are we alone? This month, NOVA explores the search for life in the Solar System and beyond in [Finding Life Beyond Earth](#). The educational resources below will help you and your students join in the search.

Join us on [Facebook](#) and [Twitter](#), or visit [NOVA Education](#) to tap into a wealth of NOVA video clips, animations, interactives, and activities.

Keep investigating!

Rachel Connolly, Director of Education, NOVA



[NOVA: Finding Life Beyond Earth](#)

#### **A Teachers' Domain Special Collection**

Use this *Finding Life Beyond Earth* collection to discover how scientists are exploring our solar system for other life forms.

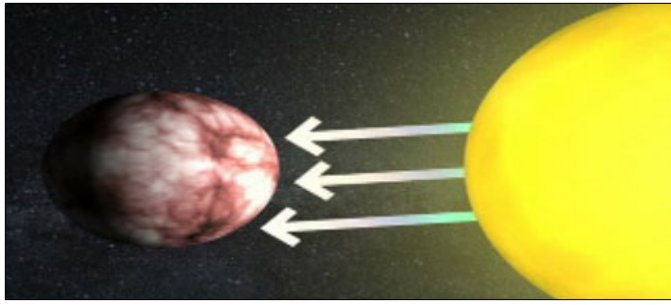


[Ingredients for Life: Water](#)

#### **Why is water crucial for the formation of life?**

Explore extreme forms of life on Earth, the importance of liquid water, and the possibilities of life elsewhere in the solar system.

*Video (4m 44s), Grades 3-12*



### [Detecting Life Beyond Earth](#)

#### **How do you detect life on a distant planet?**

Planetary scientists analyze light and heat signals from faraway planets to determine their atmospheric composition—another tool in the search for extraterrestrial life.

*Video and Quiz, Grades 6-12*



### [Tour the Solar System](#)

#### **Which planet will you visit first?**

Explore the planets, visit the moon, and gaze at the stars in this 3-D interactive model of the solar system.

*Interactive*

### [Development of a Habitable Planet](#)

#### **How did Earth become habitable?**

In this lesson, students investigate the origin of the elements, the process of planet formation, the evolution of life on Earth, and the conditions necessary for life as we know it.

*Lesson Plan, Grades 6-12*

### **Education Week Teacher**

#### **Study: Teachers Make Too Much Money**

**By Francesca Duffy**

Published Online: November 2, 2011

Premium article access courtesy of [TeacherMagazine.org](#).

At an education forum in Washington this week, the authors of a [new study on teacher compensation](#)

discussed their surprising conclusion that, counter to popular belief, public school teachers are overpaid. Speaking before a wound-up audience at an event hosted by the American Enterprise Institute, the conservative-leaning think tank that published the study, the researchers said that when wages, benefits, and job security are accounted for, public school teachers are compensated 52 percent more than their skills would garner in the private sector.

As suggested in the opening remarks, one goal of the discussion was to promote the idea that states facing budget shortfalls should consider teacher compensation—a sacred cow in many states—as a viable area for spending cuts.

Jason Richwine, a senior policy analyst at the Heritage Foundation, another conservative-leaning think tank, and co-author of the study, dismissed Education Secretary Arne Duncan's claim that teachers are "desperately underpaid." He contended that the

### **NSTA's National Conference on Science Education**

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**Note: Since the national conference will be in nearby Indianapolis, there will be no SECO conference in 2012.**

standard regression method, which compares teachers to workers with equivalent education and finds that teachers are underpaid, is flawed because it doesn't consider "unobservable ability." People going into teaching have lower SAT and GRE scores than people who pursue other fields, he said. Thus, in the case of teachers, "years of education could be an overestimate of cognitive skills." In addition, the education major itself is not as rigorous as other fields of study, Richwine said. When teachers and other workers are compared by cognitive ability, he added, "the wage penalty has essentially disappeared."

*For American Enterprise Institute writer Rick Hess' take on this study, see ["Commentary: Are Teachers Overpaid or Underpaid? Answer: Yes,"](#) November 8, 2011.*

*For blogger Nancy Flanagan's response to this study, see ["Because I'm Worth It?,"](#) (Teacher in a Strange Land Blog) November 3, 2011.*

The AEI study also shows that when teachers switched to non-teaching jobs in the private sector, their wages tended to decrease by 3 percent. Conversely, when non-teachers went into teaching, their wages went up slightly. According to Richwine, that amounts to evidence that teachers are not underpaid. "It's at odds with the standard refrain that teachers are constantly tempted by the promise of higher pay in the private sector," he said. "That's certainly true for some teachers, but for the average teacher, it's not true."

Richwine also pointed out that public school teachers on average make more than private school teachers, which he said could be taken as an indication that the public sector could pay teachers less. To support the point, he later said the "experience of the private school teacher is similar in terms of working conditions" to the public school teacher—an assertion that received an audible gasp from the audience.

### 'Questionable Research'?

The AEI study also looks at teacher benefits, vacation time, and job security. Andrew Biggs, a resident scholar at AEI who co-authored the study, said that the Bureau of Labor Statistics information that is typically used to compare benefits "omits the value of [teachers'] retiree health coverage, understates public employees' received defined-benefit pension plan, and omits the value of teachers' longer vacation time." When these factors are adjusted for, teachers do far better than they would if they worked in the private sector. Further, "public school teachers' risk of unemployment is nearly half that of other relative employees," said Biggs. "Job security has real value for people."

Panelist Robert Costrell, professor of education reform and economics at the University of Arkansas, the final panelist, praised Richwine and Biggs' research, saying their study helps to "debunk misguided work." No panelists with alternative viewpoints were included in the event.

When asked during the question and answer session if the study included data on teacher attrition rates and how those might affect the value of the retirement benefits teachers actually receive, the study's authors said they did not because of a "data access issue."

One of several agitated audience members asked how it is possible that teachers are overpaid when most people in the profession spend long hours after school grading papers, leading extracurricular activities, and planning lessons. Richwine contended that many other professions require their employees to work from home after regular work hours as well. "It's not supported by data, the idea that teachers work so many more hours than the average person," he said.

Another audience member asked why superinten-

dents and principals aren't boasting about the profession's high pay when recruiting candidates to teaching. Biggs replied, "There are various explanations—one is crude self-interest. If you're at the top of an overpaid pay scale, you're not going to advertise that." Costrell added that schools actually do talk about their comprehensive benefits and salary packages. "And unions *really* talk about it," he said.

In a press release sent out immediately after the event, American Federation of Teachers' President Randi Weingarten stated that the AEI report "uses misleading statistics and questionable research." The report's statements on job security are "pure fiction," she said, considering that 278,000 jobs in public education were lost during the recession.

"If teachers are so overpaid, then why aren't more '1 percenters' banging down the doors to enter the teaching profession?" Weingarten asked in the release, referring to higher-income Americans. "Why do 50 percent of teachers leave the profession within three to five years, an attrition rate that costs our school districts \$7 billion annually?"

### **Four fallacies of the 'teachers are overpaid' argument**

Researchers argue why public school teachers are overpaid; here's where they are wrong



**By Dennis Pierce, Editor  
eSchool news**

**November 8th, 2011** The Heritage Foundation and the American Enterprise Institute have released [a new paper](#) arguing that public school teachers are overpaid relative to the private-sector market, and therefore policy makers can balance their budgets by cutting teachers' benefits without affecting teacher recruitment and retention.

The paper is sure to provoke a great deal of thought and debate, but its arguments are based on a number of omissions and false assumptions that badly undermine its conclusions. Here are four such fallacies.

### **1. Teaching degrees aren't as valid as the academic credentials of other professionals.**

Public school teachers earn about 19 percent less in wages, on average, than non-teachers with the same level of education, the paper found. But it dismisses this finding by arguing that advanced degrees for teachers aren't as valid as those earned by private-sector employees.

The paper's researchers then compare the wages of teachers and non-teachers with similar "cognitive abilities" instead (as measured by scores on the Armed Forces Qualification Test) and conclude there is no measurable difference—meaning teachers aren't underpaid in relation to their abilities.

Where to begin in deconstructing this elitist argument, which invokes the feeble old stereotype of teachers as "those who can't do"?

The paper claims that an education degree isn't as academically rigorous as a degree in other fields, based on the results of two studies that suggest the grade point averages of education majors are higher than those of other students. Upon closer scrutiny, however, this argument falls apart like a newspaper left out in the rain.

For one thing, the grading in an education course is subjective—unlike, say, that of a math or science course, where there is only one right answer. Comparing the GPAs of education majors with those of engineering majors is like comparing apples and pineapples—it's not a valid comparison.

What's more, it requires a dizzying leap of logic to claim that higher average grades in a field of study mean it isn't as rigorous, or that its practitioners aren't as skilled.

Citing the conclusions reached by one of the GPA studies, the paper's authors, Jason Richwine and Andrew G. Biggs, argue that overall student effort is lower when the standards for grading are lower—and therefore education majors are likely learning less than their peers in other studies. While I would agree that grade inflation is a problem across higher education, that kind of broad generalization about human behavior is so ridiculous, it's shocking to find it in a serious policy paper.

I majored in English at college. I earned mostly A's. Though I haven't done the research to support my

hypothesis, I'm fairly certain the English department doled out more A's than the organic chemistry department during my time at school. I guess that means I didn't learn as much as my pre-med friends. For that matter, if you subscribe to Richwine's and Biggs' logic, the average humanities major in general must be an unskilled buffoon.

The claim is based on a 2011 "working paper" from an assistant professor at the University of Missouri that analyzes GPA data from Missouri and two other institutions. For those who are unfamiliar with how research works, a working paper hasn't been vetted yet by the research community; it hasn't been subject to peer review. Yet, this paper is cited as scientifically valid research to support Richwine's and Biggs' argument. (I wonder what my pre-med friends would have said about *that*.)

The other study they use to support their dubious assumption about the quality of education degrees examined the GPAs of 5,000 students who graduated from a *single* college from 2001 to 2009. I might be an unskilled buffoon, but even I recognize that data from a single institution shouldn't be used to draw universal conclusions.

But here's the biggest hole in their logic: The papers they refer to both examined the GPAs of *undergraduate* education majors—and yet Richwine and Biggs cite this "research" in arguing why *advanced* education degrees aren't worth the sheepskin they're printed on. This intellectual sleight-of-hand approaches academic fraud.

Richwine and Biggs further justify their dismissal of wage comparisons that are based on similar academic credentials by arguing that years of study have no bearing on how successful a teacher is.

In supporting this claim, they refer to a 2005 study that found "years of schooling, certifications, and experience beyond the first few years of teaching show little to no relationship to student achievement." But they ignore other studies that have reached different conclusions.

For example, [a study released this fall](#) by the University of Washington's Center for Education Data & Research found that the academic progress of public school students can be traced, in part, to where their teachers went to college—suggesting that a teacher's schooling does, indeed, play an important role in student achievement.

The UW study also suggests that education degree pro-

grams vary widely with respect to academic outcomes, and it might be true that several such programs need to improve the rigor or relevance of their curriculum.

But it doesn't follow logically to assume that education degrees in general are worth less than advanced degrees in other fields—and therefore shouldn't factor into wage comparisons.

Which brings me to fallacy No. 2...

## **2. Public school teachers aren't as skilled as private-sector employees with comparable degrees.**

Richwine and Biggs base this assumption on the faulty logic of fallacy No. 1, but then they steer their argument into the gutter by using college entrance exam scores to further imply that public school teachers, as a group, aren't as bright or talented as college graduates as a whole.

Without getting into the accuracy of their data analysis, of which I have no knowledge, I'm surprised to see their argument built around such a limited—and deeply flawed—view of what it means to be a "skilled" employee.

Does emotional intelligence not play a critical role in a teacher's success? Of course it does. How about communication skills? You bet. The ability to challenge? Motivate? Inspire? Yep. Ditto. Absolutely.

None of these characteristics are measured on the SAT or GRE, and yet they're instrumental to the teaching profession. Omitting them in a blanket judgment about teachers' skills and abilities would be like judging the abilities of concert pianists or fighter pilots based on test scores alone.

To use an example that free-market analysts like Richwine and Biggs might appreciate, let's compare the economic worth of a floor trader on the New York Stock Exchange and an ornithologist at a local museum. Let's assume, also, that both have a master's degree.

Does it matter to his economic value that the stockbroker's GRE scores might be lower than those of the scientist's? Of course not. What matters most to his professional success are the knowledge he learned in his field of study and the personal skills he brings to his job, such as aggressiveness, self-

confidence, quick thinking, good judgment, and analysis—skills that might, or might not, have led to higher scores on his graduate school entrance exam than the bird researcher.

Richwine and Biggs would never dream of suggesting that someone who makes fistfuls of dollars for his high-powered Wall Street firm is worth less money than someone who toils in the back of a dusty museum—even if stockbrokers as a group were found to have lower average scores than ornithologists on standard measures of cognitive ability. So, it's pretty clear that "cognitive ability" is a poor proxy for overall skills—and it has no bearing on one's economic worth or earning potential.

Yet, Richwine and Biggs clumsily swap "cognitive ability" for academic credentials in their analysis, just so they can devalue teachers. They didn't like the results when they compared professionals with similar levels of education, so they manufactured a way to cherry-pick the data that was more favorable to their desired outcome.

This convenient substitution doesn't make logical sense. Their research paper would have a hard time meeting the criteria for publication on Wikipedia, never mind a serious academic journal.

### **3. Working conditions aren't a significant factor in teacher compensation models.**

Comparing the wages and benefits of public school teachers with those of private-sector employees without also examining working conditions, or the level of satisfaction these groups have with their professions, is another omission that further damages the researchers' credibility.

Public school teachers often have to deal with dangerous, unmotivated, or unruly students, because public schools must serve all students in their jurisdictions and must go through a rigorous legal process before removing dangerous or unruly students. Besides knowledge of their specific content areas, then, public school teachers also must be adept at classroom management techniques and child or adolescent psychology. Not only are they teachers of academic content, but also disciplinarians, counselors, role models, and social workers for dozens of students.

Public school teachers learn these additional skills in classroom management and child psychology in the

education programs that Richwine and Biggs have tried to discredit; it's a key reason why public school teachers are required to earn advanced degrees and certifications in education.

Many people think public school teaching is easy, and they point to all the vacation time teachers get, but this perception just doesn't match reality. During the school year, teachers work long hours in grading papers, planning lessons, mapping their curriculum to standards, communicating with parents and students, attending staff meetings and professional development, and taking part in school functions—not to mention their six hours per day delivering instruction.

Besides classroom discipline problems, teachers often have to deal with inadequate budgets, unsupportive parents or administrators, and a host of other issues. What's more, teachers often don't get time to collaborate or interact with their adult colleagues, unless it's on their own time outside of school. These are among the many reasons the teaching profession has such a high turnover rate: Nearly half of public school teachers leave the profession within their first five years.

I haven't done the research, but I'd strongly suspect that this turnover rate is much higher than the overall average for professionals with similar credentials. If teachers are so overpaid, then why are so many of them leaving the profession in their first few years?

In response to my queries, Biggs argued that attrition rates are high in the early years for all jobs, as employees discover that the job or career isn't right for them. He further argued that attrition rates within the first few years of teaching are especially high, because "it's only then that you can fire a poor performer," before he or she earns tenure.

"What matters is overall attrition rates, which I'm very confident are lower for teachers," Biggs said, though he failed to cite any research supporting this. His reasoning? Because teachers' pension plans "make it financially insane for a mid-career employee to quit—you leave literally hundreds of thousands of future retirement benefits on the table."

In other words, a strong incentive for mid-career teachers to continue in the profession is the generous retirement benefit they receive. Take this incentive away, Biggs implies, and teacher attrition would be even higher.

Doesn't this logic collapse his premise in the first place: that, because teachers are overpaid compared to private-sector employees with similar skills, policy makers can cut teacher benefits without affecting teacher recruitment and retention?

#### 4. Slashing teacher compensation won't diminish the quality of teachers in the nation's schools.

I've shown why I think it's a fallacy to argue that teachers aren't as skilled as private-sector employees with similar credentials. But, if you take this supposition at face value, think about what it suggests: that our current teacher workforce isn't as talented as it should be.

If our goal is to attract more top-tier students to the teaching profession, then isn't that actually an argument for why teachers should be paid more, and not less, than their current level? As Jonathan Chait wrote for *New York* magazine, "[You get the teachers you pay for.](#)"

When asked about this apparent contradiction, Biggs dismissed it as insignificant. "The best and the brightest won't want to bother with" the teaching profession, he said, even if you raise teacher compensation.

He bases this belief not on any scientific evidence, but on his opinion that—as long as teachers are not paid based on a system of merit—many of the brightest students will continue to pass on a teaching career, because they cannot be compensated in a way that reflects their abilities.

"If you simply raise pay but do nothing else, you might raise [teacher] quality a little bit," he said—but you'll be overpaying the majority of teachers even more in the process.

I think Biggs is right in one respect: Offering more money alone will not help with recruiting and retaining highly skilled teachers. But it's open to debate whether the current pay-scale practices supported by unions are the primary factor in discouraging more top-tier students from becoming teachers ... or whether other factors are more likely responsible, such as the blatant lack of respect for the teaching profession that Biggs, his colleague, and many other Americans are guilty of.

While offering more money alone is unlikely to bolster recruitment and retention, cutting teacher salaries or benefits is a surefire way to hurt these efforts—despite what this policy paper argues.

Wisconsin officials already have seen the effects

of their decision to cut the benefits of teachers in that state: Nearly 5,000 teachers [opted for early retirement](#). If policy makers want to see a mass exodus like this in their own state or community, they need only follow the advice in this report.

#### Five education practices that should be replicated nationally

**An extra day for teachers to plan and collaborate each week, and requiring classes in advanced reading strategies in high school, were among readers' top ideas**



**By Meris Stansbury, Online Editor,  
eSchool News - October 31st, 2011**

An Illinois district has boosted the percentage of its students meeting state standards by requiring reading classes throughout high school.

Education leaders are always looking for examples of successful programs they might be able to replicate within their own districts. But it can be challenging to find a program or policy that could work for hundreds, or even thousands, of diverse schools, districts, and states.

That's why, in a follow-up question to our story, "[Readers: These 10 education policies need to go](#)," we recently asked readers: "If you could name only one, what school or district practice would you like to see replicated or implemented nationally, and why?" Here are our readers' best responses.

What do you think of these policies and practices? Could they be implemented on a national scale? And, do you have any ideas of your own for policies or practices that should be spread more widely? Share your thoughts in the comments section below.

#### 5. Monitoring networks to gauge application usage

"We developed a system called VIC (Virtual Information Center) that monitors all computers in the district to determine which applications are being used. **This is not used in a punitive fashion, rather it is used to monitor if software or hardware is being used and when.** We have learned a lot about what [software] teachers will and will not use. It's all about accountability. We measure what we treasure—technology." —*Andrew Berning Ph.D., chief information and technology officer, Carrollton-*



Farmers Branch ISD, Carrollton, Texas

#### 4. An extra day for teachers to plan and collaborate

"I would like to see school districts across the country practice a four-day week for students and a five-day week with teachers—**one day out of the week, without students, that we could use to plan, prep our classrooms, and prepare students' work with viable feedback.** In my opinion, this practice will help teachers not take work home with them and become exhausted. Students do not know we are always thinking about them, and if they knew how much effort we put into their lessons, maybe they would think how valuable we think their education is to their livelihood. I think this practice already takes place in some of the school districts in Texas. I read about it a long time ago, but I have not kept up with the research on this topic." —*Gail M. Owens, Class Size Reduction teacher, Woodward School, St. Louis, Mo.*



#### 3. SEED Math program: Project SEED (Special Elementary Education for the Disadvantaged)

"Started in Chicago in the early 1970s [and] spread to Los Angeles, the San

Francisco Bay area, and Sacramento, the program **invites college students who are math majors to be trained to teach students (in schools where students are poor) discovery algebra from grades 1 to 6.** The regular teacher must stay in the room to watch, and he/she will still teach math by normal methods at other times. College students were paid gas mileage to drive in carpools to SEED sites. When this was implemented in the 70s, it was funded by Title III. When enough students in the school had taken it, math scores improved to the point that the school no longer qualified for Title III. So, SEED math would be discontinued at that school. Scores would fall for the next set of entering students, and [the school] would qualify to get Title III funds again. This was a total waste of time and money. Any school that needs SEED math will continue to need it for others who enter the school. We need to find a better way to fund it. And we need to find a way to deliver it to many schools in the U.S. at this critical point in time." —*Prof. Sandy Feder, Sacramento City College Computer Science Department*

#### 2. Reading as a high school graduation requirement

"During the past 10-15 years, research has shown that there is still more to learn about the skill of



reading as a student progresses through high school, just as there is more to learn about mathematics. The process of learning more about the skills of reading changes

as a student's academic knowledge changes and increases. **A reading course at the secondary level should not be considered remedial.** In 2004, Lincoln-Way Community High School District No. 210 made reading a graduation requirement for all students. The program is organized around seven essential reading skills: Comprehension Monitoring, Cooperative Learning, Graphic and Semantic Organizers, Question Answering/Question Recognition, Question Generation, Structure: Narrative and Expository Text, and Summarization Skills. From 2004–2009, students in the Lincoln-Way High School District went from 66 percent meeting and exceeding state standards to 77 percent meeting and exceeding state standards." —*Sharon Michalak, Ed.D., assistant superintendent for curriculum, instruction, and staff development, Lincoln-Way Community High School District No. 210, Illinois*

#### 1. Tablet computers and electronic, interactive textbooks for all students



"The single most economic and productive action which could be taken to improve K-12 education is to provide each student with an interactive 8" x 11" tablet PC, together with subject material in digital interactive, color, and animated form instead of paper, books, and similar learning materials. **A tablet PC soon will cost less than \$100—making it less expensive than present learning tools.** We're in an electronic world that is rapidly expanding—[and] K-12 school systems must get with it to keep up with others." —*Stan Doore, former adjunct lecturer (Information Systems), American University*

#### International commission takes steps to protect species of shark, Mediterranean swordfish

Published: Saturday, November 19, 2011, 9:58

## PM The Plain Dealer

By Juliet Eilferin [The Washington Post](#)

International negotiators took steps Saturday to protect silky sharks, a species that is particularly vulnerable in the Atlantic Ocean, but rejected measures aimed at curbing the catch of other shark species and targeting sharks for their fins.

The delegates attending the annual meeting of the International Commission for the Conservation of Atlantic Tunas, known as ICCAT, in Istanbul, Turkey, also adopted a modest proposal governing the catch of Mediterranean swordfish, whose numbers are 50 percent below what is considered sustainable.

The commission governs the catch of species such as tuna, sharks, swordfish and billfish in the Atlantic and adjacent seas, along with the species that are caught accidentally in these fisheries. Environmentalists have frequently criticized the group, which has representatives from 48 nations, for not adopting scientifically rigorous policies and for failing to crack down on illegal fishing by its member states. On Saturday, advocates said delegates had responded to the science in some areas but not others.

The International Fund for Conservation of Nature estimates that as many as a third of all shark species face some threat of extinction, in large part because vessels target them to obtain fins for shark's fin soup. It classifies silky sharks as "near threatened" with extinction.

"It is a great day for silky sharks," said Elizabeth Griffin Wilson, senior manager of marine wildlife at the advocacy group Oceana. "ICCAT should be commended for its continued effort to protect the ocean's top predators. Today's decision to protect silky sharks is a strong step forward in protecting one of the most commonly found species in the international shark fin trade."

The new measure, proposed by the European Union, United States and Brazil, requires that all silky sharks caught in ICCAT fisheries must be released, unless they are caught by developing coastal countries for local consumption.

For the second time, delegates declined to adopt a proposal by the EU to protect porbeagle sharks because of objections from Canada, the only member of the commission that targets the species.

Delegates rejected an effort by Belize, Brazil, and the United States to require that all sharks be landed with their fins fully or partially attached, a measure aimed at curbing shark finning, after nations including China, Ja-

pan and South Africa objected. They also voted against establishing catch limits for blue and shortfin mako sharks, two species that are specifically targeted for shark's fin soup.

Faced with a significant decline in Mediterranean swordfish, ICCAT voted to require a minimum landing size, a limit on the size and number of hooks used to target swordfish and a comprehensive reporting system for gathering sufficient data to adequately assess the stock.

Maria Jose Cornax, Europe fisheries campaign manager for Oceana, called the decision "a half-hearted attempt to establish measures to protect overfished Mediterranean swordfish."

### Opportunities for Teachers and Students

Debbie Jackson and Rob Ferguson - science education professors at CSU - developed some **lesson plans for AAAS**. Teachers are needed to field review and field test these items. Teachers will be compensated for their time. Find information at [http://web.me.com/debbiekjackson/AAAS\\_Lesson\\_Plans/](http://web.me.com/debbiekjackson/AAAS_Lesson_Plans/)

The latest **NASA Space Place** column is now available. You can find both the article and its image on the "Partner Resources" web page at: <http://spaceplace.nasa.gov/partners>

**Check out our great sites for kids:**

<http://climate.nasa.gov/kids>

<http://scijinks.gov>

<http://spaceplace.nasa.gov>

### Science Songs

[http://www.nscsd.org/junior\\_high.cfm?subpage=32362](http://www.nscsd.org/junior_high.cfm?subpage=32362)

### NOVA Spark Newsletter

- Darwin and what he did not know
- Human Evolution
- Why do members of the same species look quite different?
- What do we have in common with the Sea Anemone?
- Where Darwin's predictions correct?

<http://app.nationalproduction.wgbh.org/e/es.aspx?s=2531&e=751&elq=abbdde1ca4cb474fa18a4b22623ce434>

## Ten Great Sites with Free Teacher Resources from eSchool News

1. [Academic Earth](http://academicearth.org/) offers video lectures from elite universities, and it allows viewers to grade the professors. Academic Earth also offers a "Playlists" feature based around themes such as "Laws of Nature," "Wars Throughout History," or "You Are What You Eat." <http://academicearth.org/>
2. [Curriki](http://www.curriki.com/) helps connect educators, parents, and students in the development of curriculum and other educational materials. With its open-source curriculum format, Curriki allows anyone to post their teaching ideas for others to view, download, use, reformat, and reshare. <http://www.curriki.com/>
3. [FREE](http://free.ed.gov/), or Federal Resources for Educational Excellence, is a U.S. Department of Education website that compiles free teacher resources available from dozens of federal agencies. Educators can sign up for the FREE RSS feed, which notifies users when new resources are added. Otherwise, they can browse by topic, from music history to life sciences. <http://free.ed.gov/>
4. The Library of Congress' "[For Teachers](http://www.loc.gov/teachers/)" page highlights ready-to-use classroom materials that are aligned with state standards and take advantage of the Library's primary sources. It includes access to primary source sets around topics such as U.S. presidents; short facts or activities for class starters, such as "Today in History" and everyday science mysteries; themed lesson plans for dozens of topics; and even professional development curriculum. <http://www.loc.gov/teachers/>
5. The [NASA for Educators](http://www.nasa.gov/audience/foreducators/index.html) page includes featured articles with information about NASA's various missions; image galleries on a wide variety of topics; information about NASA careers, internships, fellowships, and scholarships; NASA-produced multimedia materials; and more. An Education Materials Finder will help teachers locate NASA resources that can be used in the classroom; users can search by keywords, grade level, product type, and subject. With hundreds of publications and websites indexed, the finder is the best way to locate NASA educational resources, the agency says. <http://www.nasa.gov/audience/foreducators/index.html>
6. [The National Science Digital Library](http://www.nsd.org/) is the nation's online library for education and research in science, technology, engineering, and mathematics. It provides free math lessons and activities aligned with the Math Common Core Standards, as well as [STEM](http://www.nsd.org/)-related blogs and other free teacher resources and lesson plan ideas. Targeted for K-12 teachers, higher-education professionals, and librarians, NSDL also provides science literary maps and iTunes multimedia files. <http://www.nsd.org/>
7. Online professional development, TV programming and multimedia web content, lesson plan ideas, and ways to connect with other educators are all things featured on the PBS Teachers page. The website also features news and webinars for teachers to view. <http://www.pbs.org/teachers/>
8. [Teachers' Domain](http://www.teachersdomain.org/) offers free digital media from public TV broadcasters for educational use. Users can search for materials via individual state standards, Common Core State Standards, or national standards from different organizations. Website users can create online profiles in order to share the resources they have learned for a particular lesson with others. <http://www.teachersdomain.org/>
9. For over a decade, [TeAchnology](http://www.teach-nology.com/) has been providing free and easy-to-use resources for teachers, including "Teacher Timesavers" to help educators better organize. The site also features 42,000-plus lesson plans, 9,000 free printable worksheets, rubrics, teaching tips, web quests, and other free teacher resources. <http://www.teach-nology.com/>
10. [Thinkfinity](http://www.thinkfinity.org/) is a free digital learning platform from the Verizon Foundation that offers comprehensive teaching and learning resources created by content partners such as the Kennedy Center for the Performing Arts, the National Endowment for the Humanities, the National Council of Teachers of Mathematics, the International Reading Association, the Smithsonian's National Museum of American History, the National Geographic Society, and more. Its content includes interactive student games, lesson plans focused on various themes, education blogs and online discussions, and much more. <http://www.thinkfinity.org/>

### Opportunities at the OSU Stone Laboratory

There will be professional development and class field trip opportunities at Ohio State University's Stone Laboratory. In one short week of intensive, hands-on experiences, educators can learn innovative ways to incorporate science into their classrooms, while earning graduate credit.

Educators are eligible for tuition assistance and should submit a scholarship application along with their regular course application.

You can learn about our field trip opportunities at [stonelab.osu.edu/tripsandtours/fieldtrips](http://stonelab.osu.edu/tripsandtours/fieldtrips) and about the professional development courses for teachers is located at [stonelab.osu.edu/courses/educator](http://stonelab.osu.edu/courses/educator)

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#### From NSTA:

New Resources from NSTA on the Framework for K–12 Science Education - [http://www.nsta.org/about/standardsupdate/resources/201112\\_Framework-Bybee.pdf](http://www.nsta.org/about/standardsupdate/resources/201112_Framework-Bybee.pdf)

Google Science Fair Returns - [www.google.com/sciencefair](http://www.google.com/sciencefair)

Win a Yearlong PD Scholarship to the New Science Teacher Academy—Register Now - [www.nsta.org/academy](http://www.nsta.org/academy)

The Premier Conference on Science Education in 2012, Indianapolis - [www.nsta.org/indianapolis](http://www.nsta.org/indianapolis)

STEM Forum and Expo - <http://www.nsta.org/conferences/2012atl/?lid=tnavhp>

From the NSTA Calendar: Start the New Year With a Grant - [www.nwas.org/grants/solhirsch.php](http://www.nwas.org/grants/solhirsch.php)

The Latest from Lab Out Loud: "Hack Your Bio Class" - <http://laboutloud.com/2011/12/episode-71-hack-your-bio-class/>

AMNH Online Courses Still Available for Spring: Blended Workshop for IB Teachers - <http://www.amnh.org/learn/ib/Overview>

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## If not - join now.

## If you are - Vote for our longtime CRCST Board Member & Friend:

## **Bill Badders** for NSTA President!