
The MAST e-Rapper

12.14.09

December 2009

Editor's Note

Happy Holidays to everyone! How was Thanksgiving?

Welcome to the December e-Rapper! Not only do we have Jackie Geer's monthly column giving us great tips on some good websites but Gary Fuhrman's feature starts this month-fun demonstrations to incorporate into your science classrooms! And, Vikki Bol and her colleagues put together a new column as well. Teacher to teacher tips, questions and answers to facilitate wisdom sharing across Maryland. Each time I have the opportunity to hear advice or suggestions from colleagues, I thrive. Do you feel that way as well? Then be sure to check out Vikki's column!

We also have an update on preparation for the NSTA regional meeting hosted by Maryland. Truthfully, November 2010 sounds like a long time from now but I think we've all experienced the speed of time passing. (Wasn't it just August??) Book your calendars now and plan to spend some time finishing up that presentation proposal. (It is due in January!)

Wonderful opportunities arise for science teachers and we try to notify you of them. Please see Educational Opportunities in the table of contents. Details on the Dragonfly

project and a fellowship opportunity are there for your perusal. I just learned of one that may be of interest. The American Physical Society and the American Association of Physics Teachers has arranged for a Teachers Day at their National Meeting in Washington, DC on February 12, 2010. Details can be found on the APS website or you can contact Ed Lee (LEE@aps.org).

Thank you to everyone who attended the NIST/MAST Event last month and answered the online survey. Each event improves as a result of your feedback! I've read the responses and you seem to think there isn't much room for improvement but I know the people at NIST want to keep Maryland Science Teachers happy!

Thank you very much for your time, attention and participation.

Donna

Donna Balado, Carroll County
dmbalad@carrollk12.org

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President's Message

It's really an exciting time to be a science educator. The renewed attention on promoting science and STEM education at the federal level is invigorating. Are we on the brink of another "Golden Age of Science?" Among the recently announced incentives is "National Lab Day"--a grass roots effort to improve quality, hands-on, science learning experiences for students not just on a single day but long-term. It is designed to tap the expertise and resources of private sector, university, and community volunteers to collaborate with teachers to strengthen in-school laboratory experiences for students—an element of science education that cannot be overrated. This is a unique opportunity for teachers, the individuals who have some of the greatest influence over students' opinions regarding science, to make their needs known. It is a chance to showcase the accomplishments and garner assistance for those areas that need bolstering.

Is NLD the silver bullet for science education? I doubt it. As scientists, we know there are myriad solutions to most problems. Rather, NLD is just one step toward increasing and improving science education for our students, but it certainly highlights the value of collaboration. But, let's not wait for NLD to take advantage of the rich resources available within Maryland. This is and has been a vital component of MAST's mission and efforts. This school year alone, MAST has facilitated face to face collaboration among approximately 200 science educators. Though this is only a drop in the bucket when compared to the total number of teachers of science in the state, anecdotal evidence shows that these teachers have reached out to their colleagues at *least* four fold. Additionally, our now monthly distribution of the *E-Rapper* promotes the sharing of timely sharing of information among *all* teachers of science in the state, and our website, www.emast.org, continues to serve as a central repository of useful information for science teachers. In short, your support and participation in MAST can make a real difference for students.

Yet, there is still so much room for growth which will only occur with the involvement of everyone. To those many of you, who have recently demonstrated your support for MAST by joining or renewing your membership, thank you. If you've allowed your membership to lapse or have not had the chance to join yet, I encourage you to complete the membership application found in this edition of the *E-Rapper* or on the website. We know the importance of science education for the future. None of us can do it alone. Join us.

For more information on National Lab Day, visit <http://www.nationallabday.org/>.

Remember, MAST is only as strong as its membership. So, please, help us to make this organization one that meets your professional needs. Never hesitate to contact me with a suggestion or comment. I can be reached at mcwelle@carrollk12.org. I look forward to hearing from you.

Warm regards,
Mary
Mary Weller

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BookMark It!

Each month *E-rapper* will feature a site for you to bookmark for future use in your instruction.

Check out these two sites this month if you are teaching adaptation of organisms to the changing environment, camouflage, variations of a species, genetic mutations or predator and prey. This is a great “hook” for your lesson and you and your students will find these sites engaging.

The first site lets you change the color of the leaves and background from green to orange with many different shades between the two colors. There are two colors of beetles, green and orange. Changing the background to green allows the green beetles to survive the hungry birds. When you change the background to orange, the orange beetles survive.

There is a narrative about the peppered moth that you can take the students to if you click on the “Learn more” button. The graphics are simple, eye catching, and colorful. It is a safe site to post on your edline sites and websites.

<http://www.kineticcity.com/mindgames/fossil/>

The second site offers a free preview of the peppered moth game. This UK site’s graphics are more detailed than the first site. This site offers the students the chance to interact with the game. Click on the “Natural selection button” and the fun begins. The player is the bird, and the predator finding the prey. Click on the pre-industrial button and the background turns a light grey which allows the light grey peppered moth to camouflage with its surroundings. Click on the post-industrial button and the dark grey moth blends in to a soot-covered environment. There is an “i” button that takes you to the story of the peppered moth. Although the preview is free, they are trying to get you to subscribe to the site. It does offer an interactive game for that learning moment.

<http://www.echalk.co.uk/Science/biology/PepperedMoth/PepperedMoth.htm>

Jackie Geer, Montgomery County

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Teacher to Teacher

Timesavers

For the science teacher, there are NEVER enough hours in the day! As we give lectures, facilitate class discussions, and run labs, we wish we could squeeze out a few more instructional minutes with our students. When we get home, stacks of papers to grade seem insurmountable. How do you save your sanity while maintaining both classroom and gradebook? Here are a few tried-and-true ideas to get a little more meaning out of every second:

“With my Physics classes I keep a weekly Tardy Log/Sheet taped to a desk, closest to the door students enter. If they are tardy I just say, ‘please sign in and write down the time.’ At the end of the day if they have given me a note, I write ‘note’ next to their name. If they do not give me a note, I write ‘no note.’ This helps keep my lesson moving forward and prevents wasted distractions. It also makes them personally confirm and be accountable for being tardy. Consequences are handed out by the number of tardies acquired.”

–Barbara Redgate, Physics Teacher

“A great time saver is assigning projects as a group instead of individually. The key is to make sure all students are engaged and it doesn't turn into the one-student-does-all-the-work project. I have introduced cooperative group grading with my group projects this year. This holds students accountable because they know they will be given a grade based upon their individual contribution to the group, not simply because they were a part of a group that received a great grade. All group members sign a contract at the beginning of the project stating they are aware of how they will be graded. There are several options for various group contracts that are available to teachers for this purpose. It saves teachers the time of grading individual projects, promotes individual accountability and also the ability to work cooperatively toward a common goal.”

–Lisa Burkett, Chemistry Teacher

“I hand out playing cards to students as they walk into the room to determine the group members for labs and other group work. I try to vary how the cards determine the groups so students don't try to swap cards to control who they will be working with. For example, sometimes all the 4's work together, but sometimes the 1 through 4 of hearts work together. It really saves a lot of time and hassle in assigning random groups.” – Grace Hanners, Environmental Science Teacher

“During labs, I have found it helpful to have tasks designated to specific students in each lab group before we start the lab (i.e. runner, recorder, clean-up, etc.). Also, someday I plan to make "buttons" for these tasks so that it is easier to for the teacher to identify the roles (just need the time to do so).” --Jamie Rowder, Environmental Science

Send us your answers to: What is the best web resource you have discovered for teaching in your area of science?

Do you have a question you would like answered? Email us your question and answers may appear in an upcoming newsletter!

Vikki Bol
Calvert County

Demonstration of the Month

I'm a firm believer that students should look forward to coming to science classes. There's a world of wonder in each of us and seeing science come alive through classroom demonstrations is an excellent way to engage students. This is the beginning of a series of demonstrations that can be used in most physical science classes at either middle school or high school levels.

The Indicator Sponge

This is a wonderful demo that teaches students about pH indicators. The idea of placing a red sponge in a red solution and seeing the sponge turn blue and placing the same sponge, now blue, into a blue solution and seeing the sponge turn red is mystifying to most students and even adults. Here's how it works.

Take a neutral color, new sponge and rinse it thoroughly with water. Place the sponge in a large beaker or jar containing 1 gram of Congo red indicator mixed with 100 mL of deionized water. Wear rubber gloves to keep from staining your hands. Squeeze the sponge several times in the solution and allow it to soak for 15 minutes. Afterwards, squeeze and rinse the sponge with tap water. You can begin using the sponge immediately or let it dry over night.

Now the fun begins. Prepare two large beakers or jars, one with 0.1M hydrochloric acid solution, the other with 0.1M sodium hydroxide solution. Add several drops of blue food coloring to the jar containing the sodium hydroxide solution and several drops of red food coloring the acid containing jar.

Using gloved hands or tongs, place the red sponge into the red solution and watch it turn blue. Squeeze out the now blue sponge and place it in the blue solution and watch it turn red. You can transfer the sponge back and forth several times to continue to see the color change, but eventually you'll be transferring acid and base between the two jars and the effect will begin to fade. When finished rinse the sponge out thoroughly with tap water and reuse the sponge as often as you like.

Go on to explain the mechanism of pH indicators. Have fun with it.

Gary Fuhrman
Carroll County

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Educational Opportunities

Project Dragonfly

Application open for global field courses/Master's degree 2010 scholarships available. Contact: Jamie Bearcat Anzano; 513.529.5103; dragonfly@muohio.edu

Miami University's Project Dragonfly is accepting applications now for its 2010 graduate field courses and master's programs offering international field and conservation studies in Africa, Asia and the Americas.

Each accepted applicant is awarded a tuition scholarship covering 2010 field course tuition, equivalent to \$3,100 in-state and \$7,100 out-of-state. Award recipients are responsible for travel and field costs. **The deadline to apply is Thursday, January 28, 2010.**

Created by Dragonfly and the Cincinnati Zoo & Botanical Garden, Earth Expeditions graduate courses and the Global Field Program (GFP) Master's degree bring together graduate students, scientists, educators and community leaders at critical conservation field sites in Belize, Costa Rica, Baja, Trinidad, Mongolia, Thailand, Kenya and Namibia. New in 2010 are courses in Borneo and the Amazon.

Earth Expeditions courses and the GFP Master's may be completed part-time from anywhere in the U.S. or abroad and are open to educators and other professionals from all settings and disciplines, regardless of academic focus. For information and to apply, visit:

- Earth Expeditions <http://www.EarthExpeditions.org>
- Global Field Program <http://www.MastersGFP.org>

Interested applicants in the Cincinnati, Chicago and Seattle regions may want to visit <http://www.MyMasters.org> for information on Dragonfly's additional master's degrees, including the community-based Advanced Inquiry Program co-delivered with premier learning institutions in select U.S. cities.

Project Dragonfly
Miami University
Oxford, Ohio 45056
513.529.5103

Society for Science & the Public Fellows Program

Society for Science & the Public (SSP), with generous support from Intel, is pleased to announce the 2nd year of its Fellows Program. The SSP Fellows Program provides funds and training to selected U.S. science and math teachers who serve under-resourced students, to enable interested and motivated students to perform high-quality independent scientific research.

The SSP Fellows Program has attracted the most creative and motivated high school science and math teachers in the country. Through a competitive selection process, the Program will provide teachers the financial and

training resources necessary to support and inspire the success of their most enthusiastic science students. Fellows may serve for up to four years. The goal is to enable Fellows to guide students to produce project-based research of the highest quality, such as is selected for SSP's premiere science competition, the Intel Science Talent Search.

ELIGIBILITY:

- * Demonstrated interest in research but actual research experience not required.
- * Active engagement in 9-12 grade science or if not actively teaching at this time, must demonstrate access to students to mentor.
- * Teaching credential.
- * Must be from a school that has enrollment that is at least 40% underrepresented minority and/or with at least 30% of students qualified for free or reduced rate lunches.
- * Demonstrated evidence of engagement with students (e.g. participation in field trips, science clubs, science fair, mentorship activities; support of independent research).
- * Excellent written and oral communication skills.
- * Must be able to attend Fellows Institute in Washington DC - July 26 through July 30, 2010. SSP pays for the whole trip!

STIPEND:

Fellows receive a stipend of up to \$8500/year depending on proposed budget, demonstrated need, support of the school and needs of the student population.

Deadline for application to the 2010 Fellows Program will be January 15, 2010 at 5:00pm EST.

For information about the Fellows Program please visit:

<http://outreach.societyforscience.org/>

For questions please contact

Jennifer A. Carter

Director of Outreach

Society for Science & the Public

1719 N Street NW, Washington, D.C. 20036-2801 202.872.5140 (phone), 202.822.3922 (fax)

jcarter@societyforscience.org

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

<http://outreach.societyforscience.org> <<http://outreach.societyforscience.org/>>

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

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MAST Prepares for NSTA 2010 Regional

NSTA BALTIMORE AREA CONFERENCE

"Charting the Course to Excellence"

November 11-13, 2010

SEEKING PRESENTERS **FOR WORKSHOPS AND SESSIONS**

Would you like to present at a Regional NSTA Conference?
Please consider sharing your favorite lesson, activity, program or practice.

CONFERENCE STRANDS include:

- Teaching Science in the 21st Century
- Embracing the World from our own Backyard: Environmental Education
- Building Tomorrow's Workforce: Science, Technology, Engineering and Mathematics Educ.

Presentations may focus on a *Strand or Content Area*.

Go to www.NSTA.org Select Conferences and Institutes, then select Presenting at Conferences for an online proposal form.

Online Deadline for all presentation proposals is January 15, 2010.

Please Contact Elizabeth McCook, NSTA Baltimore 2010 Program Chair, with your questions at Elizabeth.mccook@fcps.org



Maryland Association of Science Teachers

MEMBERSHIP FORM

Welcome to MAST! Please print, complete, and mail this form to the address below.

Type of Membership – Please check one space in each column.

- | | |
|--|----------------------------------|
| <input type="checkbox"/> 1 year – \$15.00 | <input type="checkbox"/> New |
| <input type="checkbox"/> 3 year – \$40.00 | <input type="checkbox"/> Renewal |
| <input type="checkbox"/> Student – \$5.00 (1 year) | |

Member Information – Please fill this out completely!

Last Name		First Name		Level – please check all that apply: <input type="checkbox"/> Pre-K <input type="checkbox"/> Elementary <input type="checkbox"/> Student <input type="checkbox"/> Supervisory <input type="checkbox"/> Middle/Jr. High <input type="checkbox"/> High School <input type="checkbox"/> College/University <input type="checkbox"/> Organization (please specify) <input type="checkbox"/> Other (please specify)
Street Address				
City		State	Zip	
Local School System		School		
Home Phone	Work Phone		Cell Phone	
Email Address		Alternate Email Address		

I would like to donate \$ _____ to support:
 the MAST Awards for Excellence in Science Education Program
 the MAST Mini-Grants Program

Please make your check payable to the Maryland Association of Science Teachers (MAST) and send it with this completed application to:

MAST
 P.O. Box 368
 Finksburg, MD 21048

For Office Use: Date Received _____ Amt Paid _____ Membership to: _____

Cash _____ Check Number _____ Check date _____ MER 12.09

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