

# SciMo Says

**The Newsletter for Science in Motion at Susquehanna University  
Volume IX Issue 2 April 2010**

## **Dr. Courtney Thomas, Director Says...**

We are back! On February 16, SU-SIM began the process to reopen after notification that **Governor Rendell reinstated SIM funding** at 90% the original 2009-10 allocation. Many thanks to legislators, teachers and friends who wrote letters, sent e-mails and made phone calls supporting SIM funding!

The **SIM Winter Workshop** was held **January 7, 2010 at Susquehanna University**. Fifteen teachers representing thirteen schools attended the one day workshop. Biology teachers performed photosynthesis and respiration, chlorophyll in olive oil, physiology and catalase experiments. Chemistry teachers performed analyses using the SpectroVis, soil crime scene and IR of liquids.



*Eric Anderson and Dr. Courtney Thomas (SIM) discuss experiments during the Winter Workshop.*



*Jennifer Biddinger (Mt. Carmel) and Dr. Mary Howe (SIM) perform a respiration experiment during the Workshop.*

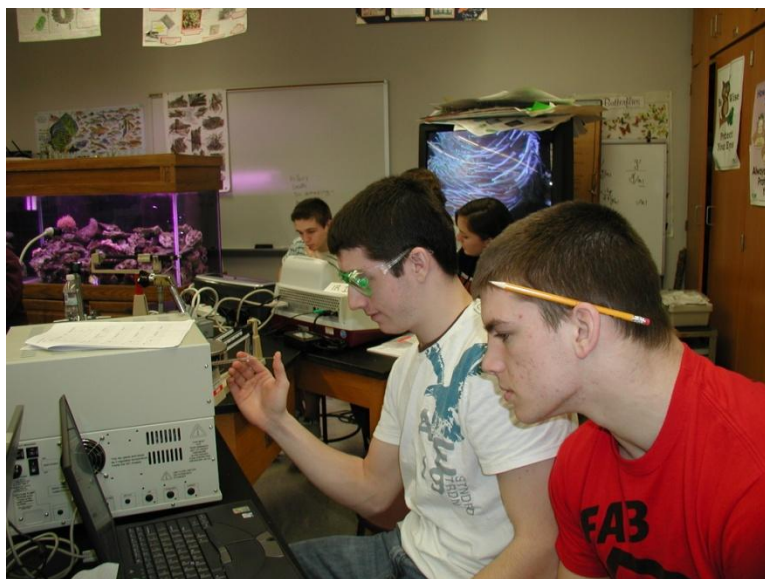
SIM MEs Mike and Eric attended the **NSTA Conference** in Philadelphia March 18-21. See their articles for a recap.

The **SIM Summer Workshop** has been scheduled for **Monday June 14 through Wednesday June 16, 2010** at Susquehanna University. We are hoping to host the workshop in the New Science Building on campus. Teachers will earn fifteen Act 48 professional development hours and a \$150 stipend for attending all three days. A registration form is available on the SIM website ([www.susqu.edu/about/SIM.asp](http://www.susqu.edu/about/SIM.asp)) under SIM Newsletters. Please e-mail, fax (570-372-2791) or mail your **completed registration form to me by May 3<sup>rd</sup>, 2010**. We only have space for twenty teachers!

We want to hear from you! We need feedback from teachers we serve. **Please fill out the on-line SIM Mobile Lab Evaluation Form** ([www.susqu.edu/about/29159.asp](http://www.susqu.edu/about/29159.asp)) **for every SIM visit and equipment drop.** This Survey Monkey form is quick and provides us with valuable information.

### Mike McDevitt, Chemistry/Physics Mobile Educator Says...

It's been quite a tumultuous year. Thank you to our loyal teachers who are sticking with the program no matter how difficult it is to contact and schedule our ME's. In spite of our on again/off again year, Science in motion has been quite busy. As soon as we were resurrected in late February, equipment began leaving our shelves. Laptops with Motic software went to **Bo Meyer** at **Williamsport** to run his digital scopes. Our Infrared Spectrophotometers went to **Brian Tomko** at **Greenwood HS**; they later travelled to **John Capwell** and **John Tamblin** at **Hughesville HS**. Both schools performed our *Infrared Analysis of Organic Liquids* and *IR Analysis of Fatty Acids* experiments. Our *CSI: Soil Analysis* went to **Madge Schworer** at **Central Columbia Middle School**.



**Bloomsburg High School students performing Chemistry CSI.**

I was also kept quite busy with a week at **Bloomsburg HS** with **Jim Perry** and his chemistry students. His students performed our *Chemistry Crime Scene* series of experiments. One of my most enjoyable experiments, *Tones, Vowels, and Cell Phones* was requested by **Tracy Hepner** at **Selinsgrove HS**. Our series of three simple machine experiments, *Levers, Inclined Planes and Pulleys* was presented to **Milton** students at the request of **Corey Kyle** and **Jocelyn Bailey**.

I just returned from NSTA with an introduction to a number of new Vernier items. A question for all our physical Science and Physics teachers....

Would any of the following items be useful to you and your students?

1. GPS that plug into a lab quest or lap top. Generates latitude, longitude, and altitude (elevation) values.
2. Optics Expansion Kit for our 8 foot Dynamics tracks.
3. Vernier Electrostatics Kit
4. Charge sensor
5. Garmin GPS with topo maps.

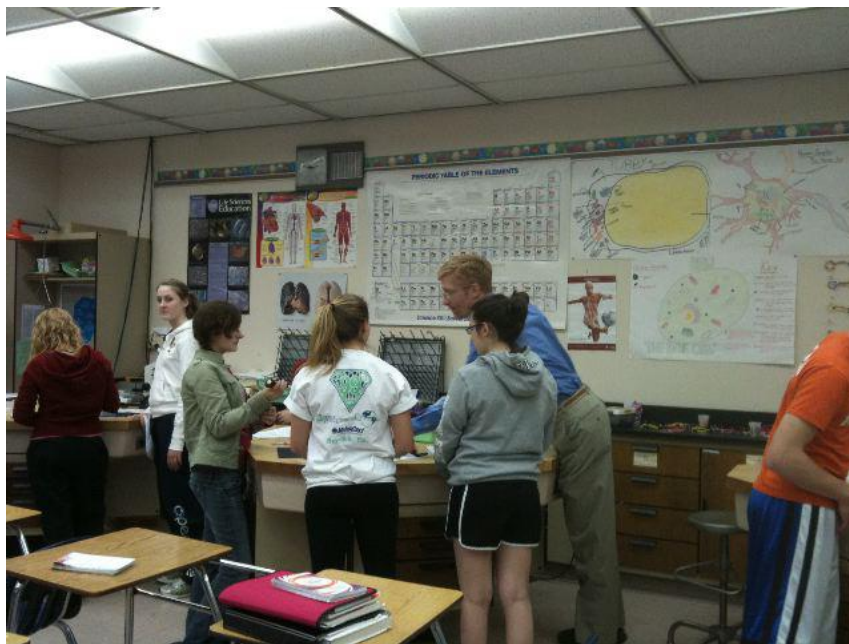
If any of these items would be useful to you and your students please contact me and we will try to add those to our inventory.

I still have **openings for chemistry or physics visits/drops** on April 7 – 9, 19 – 29; May 3-5, 7, 10, 12, 13, and 17 – 21; and June 8, 10 and 11. Please e-mail me at [mcdevitt@susqu.edu](mailto:mcdevitt@susqu.edu) to hold your dates.

## Eric Anderson, Biology Mobile Educator Says...

SIM is back in business. Thank you to all the teachers who supported the program through their letters, emails, and calls and a special thanks to those who got their students involved. Employed or unemployed by Susquehanna University I believe in this program. It benefits all involved—most importantly Pennsylvania's students. I have hit the ground running and have been able to honor most of the dates that teachers had scheduled prior to the shutdown. My apologies to those teachers whose requests were not granted.

*pGlo Transformation* has been "in season" and the spring has sprung on *Crime Scene Investigation*. **Sonia Crane's** students at **Danville HS** and **Allison Spencer's** students at **Berwick HS** saw the transforming effects of inserting the gene for luminescence from jellyfish into non-pathogenic *E. coli* bacteria. After incubating the bacteria overnight in different culture media the students—equipped with UV lights—got visual proof of their genetic engineering with the glowing of bacteria. This is a very cool lab! March and April are the time for *Crime Scene Investigation* and the fun began at **Shikellamy HS** with **Mary Dahlmann's** students to be followed by **Jim Perry** and **Jim Dodge's** students at **Bloomsburg HS** and finally at **Danville HS** with **Donna Wood**, **Donna Counterman** and **Elena Krick's** students. A potpourri of investigative techniques within an overarching 4-5 day inquiry-based lab, each teacher likes this done a little differently.



*Eric Anderson assisting Mrs. Crane's students at Danville High School.*

The NSTA national conference in Philadelphia was a whirlwind of seminars and exhibits. WOW! A lot of information was to be had everywhere. I would recommend that future attendees look at the schedule of seminars ahead of arrival to best plan the days spent. It was nice to Elena Krick and Pam Ulicny polishing up on their disciplines there and the weather was perfect—a necessity when walking to and fro amongst the conference buildings.

My April calendar is full and May is filling up fast. **Open May dates are 7, 13-14, 18-19, and 25-28.** E-mail me first at [andersonel@susqu.edu](mailto:andersonel@susqu.edu) to check on a date.

## Dr. Mary Howe, Water Quality Mobile Educator Says...

The 2010 SU SIM Water Quality project is in full swing.

We have testing sites in five counties, Lycoming, Columbia, Northumberland, Juniata, and Schuylkill, which cover much of the SU SIM territory. All sites are within the Susquehanna River basin. Over 150 students participated in Water Quality classroom orientations during February and March. Students practiced with equipment used to measure the chemical and physical properties of natural waterways. Our stream side visits have begun and will run throughout April and May.

The inaugural 2010 Water Quality visit was an orientation session in **Jay McHenry's** class at **Benton High School** in late February. **John Hernandez** hosted my classroom visit with his Ecology students at **Sunbury Christian Academy**; John is a long-time veteran of the Water Quality program and a pro with the flow meter equipment. Next, I visited **Mary Hopple's** Environmental Studies class at the **Jersey Shore Area Senior High School**; this is the first year we will be doing water quality testing in Larrys Creek. **Mary**



*Sunbury Christian students learning probe calibration.*



*Dr. Mary Howe demonstrating flow at North Schuylkill HS.*

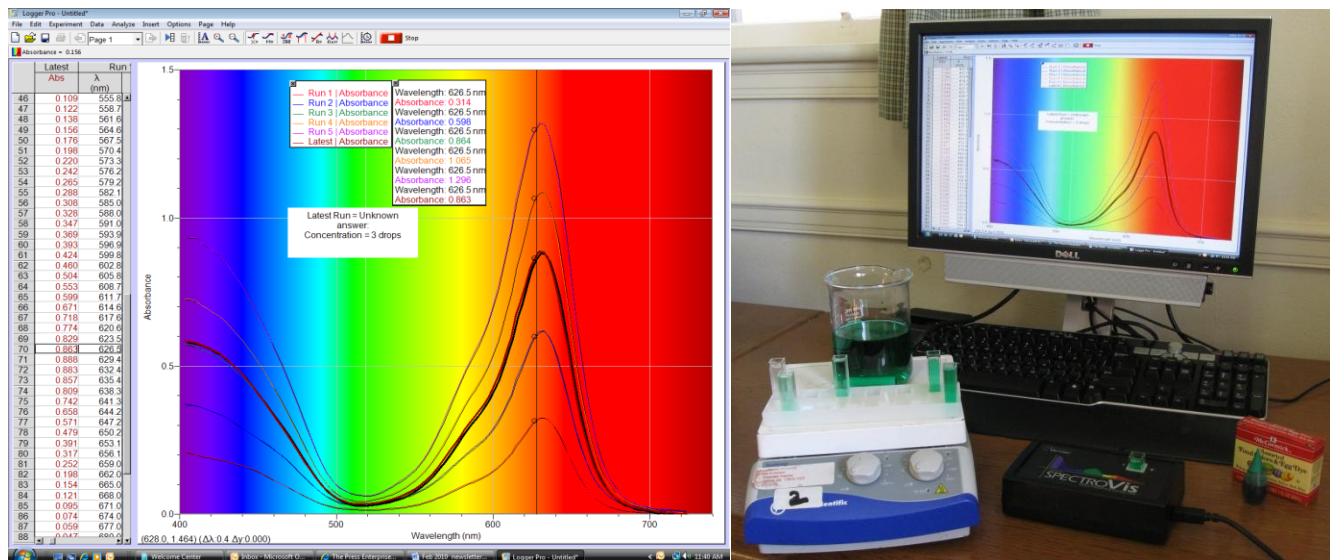
**Dahlmann** invited me to discuss our water quality project with all of her biology classes at **Shikellamy High School**. Seven lucky students from Mary Dahlmann's classes were able to visit Little Shamokin Creek on March 31. The water was running high, fast, and murky, but the weather was beautiful. **John Slotterback**, another veteran of the Water Quality Project, invited me to his Environmental Science classes at **North Schuylkill High School**, and his students will make their first visit of the year to the Little Mahanoy creek in mid-April. Many thanks to the students and teachers for participating in this project.

Time to put on your waders and get into the creek.

## Experiment of the Month

### Determining the concentration of a solution using the Vernier SpectroVis

This experiment can be described as a simplified Beer's Law experiment designed for students who may have difficulty working with a spec 20 spectrophotometer. In the experiment students will create a solution of food dye of increasing concentration by adding drop-wise one color from a McCormick food coloring box.



Students add one drop of food coloring to 200 ml of water. After the dye is thoroughly mixed, a cuvette is filled with the mixture, placed in the SpectroVis and a full visible spectral scan is produced. The absorbance of the major peak(s) can be determined by clicking on the examine button. Then this scan of concentration value of 1 (one drop) will be stored on the graph. A second drop of dye is then added to the mixture and the process is repeated. This is repeated for up to 10 drops. During the experiment the instructor should acquire from each group an unknown sample. This unknown will have the concentration of one to 10 drops. The other groups can then try to determine the concentration of the unknowns by placing the cuvette into the SpectroVis and superimposing this scan with the original scans. Hopefully this unknown will match one of the original 10 scans, thus, indicating the concentration of the unknown. Absorbance values of the major peak(s) can also be compared, illustrating a second method for determining the concentration of the unknown. This lab can be completed in one 42-minute class period. It can be performed as a visit with a mobile educator or as an equipment drop off.

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