

MSTA Newsletter



A publication of the Michigan Science Teachers Association • Volume 64.2 • Spring 2012

In this Issue

NGSS Development Update _____	1
From the President's Desk _____	1
MEECS Second Edition Available _____	2
From the Desk of the Executive Director _____	3
Book Reviews _____	4
25 Years of Science Education _____	5
Conference Corner _____	7-10
Curriculum Ideas _____	14-17

From the Desk of the MSTAPresident - Michael Sampson

2012 MSTA Conference - The View from a Conference Chair

So another year goes by and another great MSTA conference in the books. Another job well done conference committee! As conference co-chair and member of the conference planning committee, I don't get to see many sessions, but the few I did get to see were very good. One in particular was the session "Where Do the Atoms in Your Body Come From?" presented by Dr. Wolfgang Bauer from Michigan State University.

Dr. Bauer spoke about the origin of atoms in the universe and how the process was driven by



the big bang and stellar evolution. In the session, he talked about nuclear physicists and their ability to do what the alchemists dreamed of and he even showed the attendees how to calculate the number of atoms that we share with historical figures. All of these topics are interesting on their own, but when combined with research that

continued on page 2

April 2012 MDE Update on Next Generation Science Standards Development

By Susan Codere, Project Coordinator MDE/OEII

The Next Generation Science Standards (NGSS) are being developed from the NRC *Framework for K-12 Science Education*. Getting to know the *Framework* now is a perfect first step in preparing for implementation of the standards that will be ready for adoption in very early 2013.

First Public Review of DRAFT Standards

The first public review of the standards will be held in May 2012 (beginning around May 1st or 2nd, if targets are met, and running for 3 weeks). For participants to give useful comments on the standards, they really need to understand that the standards are developed from the *Framework*. So our public review sessions will focus on getting to know the *Framework* and understanding its vision and intent well enough to assess how well the NGSS reflect that vision. More information about the *Framework* and the NGSS development process is available at <http://www.nextgenscience.org/>

The public will have **two chances** to review the standards while under development. As a Lead State in the standards development, Michigan will use these two public reviews

as opportunities to inform our stakeholders. We are not planning to hold additional public reviews just prior to requesting State Board of Education (SBE) adoption.

Our Michigan Math and Science Centers will host introductory sessions to prepare participants for the first public review.

Links to the review materials and contact information for the Math and Science Centers will be posted on the MDE Science site http://www.michigan.gov/mde/0,1607,7-140-28753_38684_28760---,00.html

NGSS Tentative Timeline (subject to change as plans evolve)

- May 2012 - Public Review
- Fall 2012 - Public Review (in preparation for anticipated SBE adoption)
- Later Fall 2012 and Winter 2012-13 - Support for SBE Adoption (Communication regarding need for planned transition, etc.)

continued on page 2

- Early 2013 - Anticipated SBE Adoption (We are hoping for February so we can work from adopted standards at the March MSTA State Conference); support for adoption will include initial plans for transitioning to implementation.
- Spring - Fall 2013 - Develop and refine transition plans; focus on overarching practices and cross-cutting concepts as they fit within current curricular plans.
- School Year 2013-14 - Formalize transition plans, curriculum alignment plans, provide Professional Development to support transition.
- School Year 2013-14 - Begin planned implementation of overarching practices and focus on areas of current curricula that address cross-cutting concepts, etc.; begin planned implementation in other areas as appropriate.
- School Year 2014-15 - Continue planned implementation (transition schedule defined by proposed changes in grade-level focus, Michigan Merit Curriculum (MMC) requirements, and proposed plans for assessment).
- School Year 2015-16 - Continue planned implementation (transition schedule defined by proposed changes in grade-level focus, MMC requirements, and proposed plans for assessment). Plans may call for full implementation at some (or even all) grade levels depending on scope of transition at the local level.
- School Year 2016-17 - Full K-12 implementation (probable, but still hinging on changes as listed above).
- First realistic opportunity for full state-level assessment of new standards; could begin to focus on portions of NGSS on earlier assessments based on transition plan.

Everything is subject to change as decisions made in other areas impact our work.

Current Work and Preparation in Michigan

The Next Generation Science Standards represent a critical step in our efforts to prepare Career and College Ready students. They complement the Common Core State Standards (CCSS) and lay out a plan for promoting STEM learning and science literacy in all Michigan schools.

In September 2011 we began planning for adoption, transition to implementation, and identifying necessary supports. We will continue to plan throughout the process - one great advantage of being a Lead State in the NGSS development. Our team will not underestimate the importance of supporting teachers and districts in planning and preparing for the transition to new science standards.

In partnership with the Michigan Science Teachers Association (MSTA), Math and Science Centers, university partners, and business and industry (through the Michigan STEM Partnership and Achieve, Inc.) we plan to provide the levels of support necessary to reap the benefits of the time and energy we have already invested in this project.

We look forward to hearing your feedback and to soliciting your continued participation as we plan for a second public review in the Fall, and proposed adoption in early 2013.

he is doing at the National Superconducting Cyclotron Laboratory at Michigan State University, it was a perfect fit with the Pure Michigan Science theme of the conference.

After the session, I heard some of the attendees talking about how it was “cool” to hear a scientist talk about doing science at the conference. I spoke with some other members of the conference committee and we agreed that this is a direction that we should pursue for future conferences; having scientists talk about “doing science” and “real world” applications of science.

While bringing you more “scientists talking science” at next year’s conference is a goal, we will also be bringing you information about the Next Generation Science Standards and how to implement them in your classroom. So... mark your calendars for March 7-9, 2013 to join us for our 60th annual conference, *Pure Michigan Science, The Next Generation* at Eastern Michigan University.

If you are interested in seeing Dr. Bauer’s presentation or others from the 2012 MSTA Conference go to <http://www.mstaconference.org/session-handouts.html>.



MEECS Second Edition Available!

At this year’s Michigan Science Teachers Association conference, the second edition of the Michigan Environmental Education Curriculum Support was launched to an enthusiastic crowd of over 170 attendees. The MEECS training at MSTA involved 6 sessions focused on the following: Air Quality and Climate Change; Ecosystems and Biodiversity; Land and Environment; Energy Resources; Water Quality; and Outdoor Education. The Climate Change unit is a new MEECS unit, and it features information needed to teach climate change mechanisms, trends, and more at the 7th, 8th, and 9th grade levels. Additionally, the new Land and Environment unit highlights land uses of our local and state areas, as well as physical and human characteristics of Michigan. Also new to MEECS Second Edition is the Outdoor Education Supplement, which is a useful tool for taking the classroom outdoors and includes regionally organized maps of outdoor teaching sites and assistance from outdoor mentors. An attendee of the 2012 MEECS unit trainings said, “Great presenters! They were very enthusiastic and knowledgeable about their common cause.” Workshops for MEECS Second Edition will soon be announced and will be available statewide throughout 2012. If you are interested in MEECS training sessions, please contact Tom Occhipinti at occhipintit@michigan.gov for more information. For updates on MEECS, please visit www.michigan.gov/meecs.

From the Desk of the Executive Director

By Robby Cramer, MSTA Executive Director

“A New Vision of Science Learning that Leads to a New Vision of Teaching”

A Framework for K-12 Science Education

The premise of A Framework for Science Education, the foundation of the Next Generation Science Standards (NGSS) is that science is a verb! The learning and teaching of science is a series of actions: inquiry, conducting investigations, and participating in scientific discourse, all woven through the processes of critical and creative thinking.

Science learning comes about in a variety of ways. Students and teachers learn together. Students learn from their teachers. Teachers learn from their students. Students learn from other students. Teachers learn from each other. The mixtures of learning opportunities make a vibrant community of learners.



Last month at the MSTA state conference I observed this process of learning science in action. Science teachers, leaders, and scientists gathered in Lansing to share perspectives on best practice in the teaching of science based upon the theme of *Pure Michigan Science*. Three weeks later the process of learning of science was reinforced when I attended the National Science Teachers Association Conference in Indianapolis. Conference presentations and subsequent dialogs in the exhibit hall and NSTA bookstore focused on the Next Generation Science Standards. Educators at all levels continue to try to understand the scope and depth of *The Science Framework*.

A major focus is on how teachers will deliver science content to students! The following thoughts are my perspectives as a member of Michigan’s NGSS Review Team. They are coupled with my professional practice with students, educators and scientists at the Van Andel Education Institute.

The Scientific and Engineering Practices and the Crosscutting concepts will be the basis for changes in our instructional practices. We need to focus on making our students thinking visible and audible, and teach students structures to organize their thinking. We must teach our students the vocabulary of our science disciplines. To become a scientifically literate person our students will need the core disciplinary ideas to express in their scientific thinking through discourse and informational writing.

“The underlying tenets of the Framework include the practice of discourse and inquiry based on higher-level thinking.”

The underlying tenets of the Framework include the practice of discourse and inquiry based on higher-level thinking. Build into your daily lessons opportunities for your students to practice their scientific thinking and skills in scientific investigation. Encourage your students to take coursework in mathematics and statistics. Stress the need for students to take technology courses including computer programming.

The public survey will be released the beginning of May for a three week window. Watch for notices from MSTA that the survey is open. Encourage your friends to participate in the survey. Urge family, friends, community members, scientists and people in science related careers to voice their opinions. Your voice will make a difference.

MAKE A TRIBUTE TO MSTA

Has a special science educator touched your life? Do you have fond memories of a special teacher or student? Is a colleague getting ready to retire? Please consider a tax-deductible donation in their honor to support the mission and values of the Michigan Science Teachers Association.

Would you like to express your sympathy to a grieving family? A donation made to the Michigan Science Teachers Association in memory of an educator or family member would be a lasting and valued tribute that will link the past to the future.

A tax-deductible donation (minimum of \$10) may be made to MSTA by printing and completing the form. The honoree or family member of the deceased will receive notification of your gift.

I would like to make the following donation to the Michigan Science Teachers Association:

IN MEMORY OF _____ IN HONOR OF _____

Birthday Anniversary Speedy Recovery

Retirement Appreciation Other _____

Amount of Contribution Enclosed (Please make checks payable to MSTA): \$ _____

Please check which fund you would like to allocate the contribution to:

Mini-grant Fund - Support special member projects

Outstanding Teacher Awards -Grant monies for awardees

Membership Fund - To sponsor new members

Conference Stipend Fund - To sponsor conference attendees

MSTA Board Discretionary Fund

SEND ACKNOWLEDGEMENT TO:

Name _____

Address _____

Donor’s Name: _____

Address _____

Please send to: MSTA Office, 1390 Eisenhower Place, Ann Arbor, MI 48108

Twenty-Five Years of Science (and Math) Education

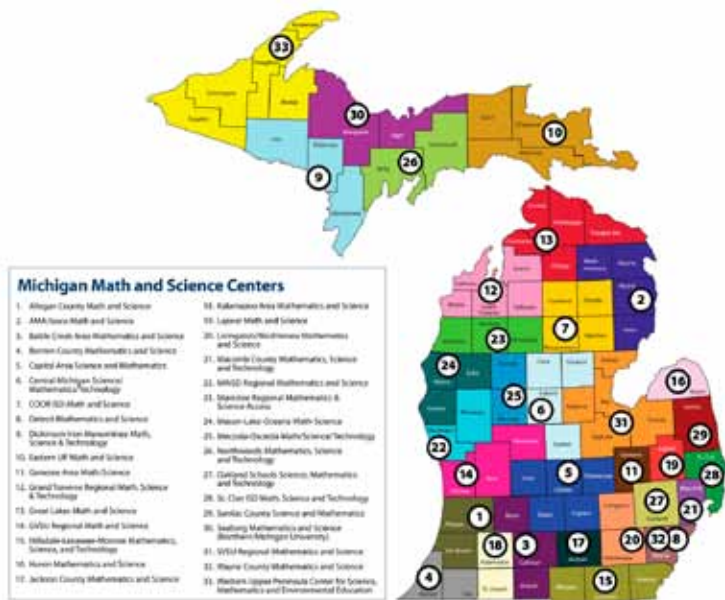
Conference Session

by David McCloy, MSTA Region 8 Director

What is twenty-five years old, is available to every school in the state of Michigan, has provided countless math and science educators with immeasurable classroom support, continues to provide invaluable service despite being on the brink of legislative extinction, and employs a small body of extremely dedicated individuals without whom none of this support would be possible?

To those familiar with the Michigan Mathematics and Science Center Network (MMSCN) this question seems far too easy and a bit of an affront considering the quarter century of statewide service and numerous successes the Network has demonstrated over the years. But the fact remains that for most of its storied history and despite an excellent track record of writing and receiving grants designed to improve the skill-set of Michigan's teachers, the MMSCN has remained somewhat of a mystery to the many it has tried to reach. Attempts to rectify this are constant and ongoing as demonstrated by a session presented at the 2012 MSTA Conference by Karen Meyers and Jennifer Harrison, MMSCN directors from Grand Valley State University and Mecosta-Osceola ISD, respectively. This session highlighted the varied history of the organization and some of the many ways the MMSCN is currently assisting the state's schools, students and teachers meet their scholarly and instructional obligations.

Created in 1987, by the State Board of Education and funded by the Michigan legislature, this fledgling organization has grown from an initial 17 centers to the 33 distinct and individual centers which exist today each responsible for a defined geographic region of the state (see map).



[Map =http://www.mimathandscience.org/downloads/maps/map_larger_20110808_120419_7.jpg]

Each center has a local emphasis and focus specifically built into a strategic plan designed to address the needs of the region, but all centers have an equal say into statewide programming regardless of size or capacity. A few are aligned with state universities (4), but most are associated with the regional ISD network (29). The MMSCN services all schools regardless of type including public, charter, and parochial; all are viewed as equal partners in this alliance

and each is afforded an equal degree of support. That support comes in the form of the “six basic services” outlined in the organization’s Master Plan. They include:

1. **Leadership** to reflect national and state standards, research, and a shared vision for improving mathematics and science education,
2. **Student Services** to improve and enhance mathematics and science learning for all,
3. **Professional Development** to strengthen and update teaching practices based on current research and local needs,
4. **Curriculum Support** to develop curricula in local districts that incorporate research in teaching and learning as well as recommended national and state standards,
5. **Community Involvement** to increase awareness, nurture ownership, and identify resources for innovative and bold educational programming, and
6. **Resource Clearinghouse** to collect and transfer information; to identify, acquire and distribute materials; and to locate and effectively utilize human resources.

Among its many responsibilities, the MMSCN is trying to develop outreach strategies which will allow it to collaborate and/or coordinate with several mathematics and science initiatives. A sampling of a few of the national and statewide projects the Network is currently involved with are:

- § **Michigan Science Technology Engineering and Mathematics (STEM) partnerships;** Centers are willing to partner with existing programs to help enhance and promote these statewide efforts,
- § **Family Engineering programs;** Involvement of parents in helping to maintain student interest in critical math and science areas through after school and evening programs,
- § **Writing Across the Curriculum;** The sharing of critical writing strategies with classroom teachers through professional development opportunities,
- § **Next Generation of Science Standards;** Serving as both writers and reviewers on this multi-state collaborative, efforts are underway to insure content richness and accuracy in this latest effort to adopt a consistent set of content and practice goals,
- § **High Priority School efforts;** To ensure all students have the opportunity to achieve high levels of mathematics and science education, Centers will deliver targeted support to high priority schools consistent with the six basic services.

Much more information and further insights into programs offered and the future direction of the Michigan Mathematics and Science Center Network can be obtained at the organization’s website. This includes a copy of the Master Plan and the latest Annual Report. Go to the MMSCN website (www.mimathandscience.org). These documents are an interesting read and will provide further insight into the history of the organization as well as a look into current funding levels and programs being offered and how you and your school may obtain and benefit from these efforts. A special thanks goes to both Karen Meyers and Jennifer Harrison for their presentation at this year’s MSTA Conference and for sharing their experiences and perceptions into this unique and valuable statewide resource.

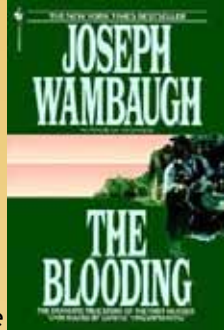
Book Reviews

THE BLOODING

By Joseph Wambaugh

Reviewed by Maggie Smith, 9th Grader, Kalamazoo Area Mathematics and Science Center

The *Blooding* is the true account of the first double homicide case that used DNA testing, or genetic ‘fingerprinting’ to find and convict a man who raped and murdered two young girls. The story follows the two towns where the girls lived, and the investigations that followed after their deaths, which were three years apart. The story then moves to the investigation, with the recent discovery of DNA ‘blueprinting’ to help solve the case. The police chose to gather blood from men in all the villages, and then matched the blood to DNA collected from the victims.



I found this book to be interesting but disturbing at the same time. The main reason I felt this way while reading was the story line was rather unsettling. I find crime stories to be interesting, but the brutality of these crimes was what I found disturbing. My reactions aside, it is a very well written book and manages to convey the story in a way that allows the reader to have true reactions to what those poor girls went through, it keeps the reader distanced from the whole thing so they are not completely repulsed and put down the book.

Another thing I liked about the book was the way the writer portrayed the two victims. It would be easy for the writer simply skim over them, having them be a backdrop for the rest of the story to unfold upon. Instead, he goes into detail about them, making the story focus around what a terrible loss the murders were, making the reader hope the whole time their killer is brought to justice. It is for that reason I found the book to be an incredible piece of work, that tells an important story.

THE MISMEASURE OF MAN

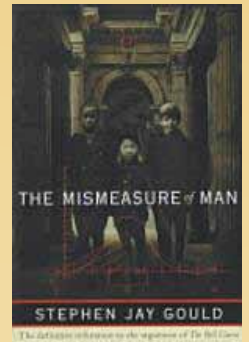
By Stephen Jay Gould

Reviewed by Chang Yang, 9th Grader, Kalamazoo Area Mathematics and Science Center

It seems that with all the rumors, uncertainties, and propaganda in the world, the only reassurance one can gather is from numbers. Numbers standing by themselves are nothing but facts that can be assessed and used without incorporating bias to sway one’s opinion. Or can they? Stephen Jay Gould, in his half-history, half-critique book (deftly called *The Mismeasure of Man*) brings to light the large range of ignorance scientists can use, unconscious or otherwise, to produce the conclusion they want in their research. Along the way, he warns of the fallacy that is

reification, or, “our tendency to convert abstract concepts into entities” such as IQ and the hierarchy of the human race.

If there could ever be a Golden Rule in the requirements of research, it is to make conclusions post-observation. A priori expectations, as shown in anecdotes scattered throughout the book, often manipulate and dictate the end results. In most cases, the culprit is not even consciously aware of their bias, and then delights in seeing the numbers work to their opinion. This dangerous error caused an entire race to suffer when 18th century scientists, carried on the thrilling new trend of craniometry, proceeded to show statistically that the African race had smaller craniums than those of the Caucasian. As a result, a general conclusion sprung up that on the intellectual pyramid, Caucasians were undoubtedly at the peak, with Africans permanently squashed at the base. A prime culprit of this misconception would be that of George Morton, who collected a large sample of skulls and measured their craniums with lead shot. He had measured 144 “Indian” (actually referring to people of Central and South America) skulls and calculated a mean of 82 cubic inches, a full five cubic inches below the Caucasian norm. The 144 Indian skulls had been mostly represented by the Inca Peruvians, who possessed small brains in general. However, Morton had eliminated similarly-sized Hindus from Caucasian mix, simultaneously raising the cranial mean of white people while lowering that of the Indian group. In addition, the majority of the Caucasian skulls belonged to men, while “inferior” races were mostly comprised of women. As men generally have bigger heads than women, Morton failed to factor the difference in gender and proudly concluded his “evidence” that Caucasians belonged to the most intellectual race. Morton was not the only scientist undone by a priori expectations. One of the leading anthropologists of the time, Paul Broca, was guilty of pre-assuming as well. He attempted to show the steady increase of brain size as European civilization advanced. In three different means of cranial capacity (from the 12th, 18th, and 19th century), the capacities were 1426, 1409, and 1462cc respectively. Obviously the cranial size didn’t enlarge steadily through this time period. However, Broca made excuses for the 1426-1409 decline by mentioning differences in social class. “Broca claimed that if differences in social class do not explain why calculated values fail to meet expectations, then the data are unintelligible.” (Gould, p.128) Eventually his argument had his theory prove his numbers which proved his theory, in an impossible cycle of logic.



Gould’s assessment of the scientists’ statistics was commendable, and easy to understand. His re-do of the experiments revealed how bias was powerful enough to sway numbers and convey predetermined assumptions. The result he leaves the reader with states that it is impossible to classify an abstract force and force it into a linear rating system in the form of “intelligence.” Attempting to do so, and wielding that rating system upon ourselves, has ended in the ultimate “mismeasure of man.”

Are You Prepared...

to Teach in the 21st-Century Classroom?



Lawrence Technological University Can Help!

MASTER OF SCIENCE EDUCATION

- This graduate program in science education includes \$1,218 per course scholarships for all K-12 educators (DI or non-DI endorsement).
- Complete two courses by attending classes just one night per week, with a second meeting online and four new, 100-percent-online classes.
- Developed by Lawrence Tech in partnership with the Detroit Zoological Institute, Cranbrook Institute of Science, Aquinas College, and the University of Detroit Mercy.
- Courses aligned with the Michigan Department of Education requirements for Science and the DI (Integrated Science) Endorsement.

Waive your application fee at
www.ltu.edu/applyfree

Explore over 100 undergraduate, master's, and doctoral programs in Colleges of Architecture and Design, Arts and Sciences, Engineering, and Management.



For more information on these and other science programs, visit www.ltu.edu/sciences

MASTER OF EDUCATIONAL TECHNOLOGY

- Master technologies that are revolutionizing the classroom: Web-based learning tools, streaming video, electronic communication, and software and hardware options.
- This practice-oriented program offered by Lawrence Tech in partnership with Marygrove College features \$1,218 per course scholarships for all participants.
- Complete the seven required courses of the Master of Educational Technology degree and be eligible for the NP endorsement on your existing teaching certificate.
- Classes are offered in a 100-percent-online format.
- Training and Performance Improvement track (30 credits) and graduate certificates (12 credits) in Robotics Education, Instructional Technology, Project Management*, Nonprofit Management and Leadership*, and Workplace Technology* are available.

**Also offered online*



Possible is everything.

Lawrence Technological University | Office of Admissions
21000 West Ten Mile Road, Southfield, MI 48075-1058 | 800.225.5588 | admissions@ltu.edu | www.ltu.edu



Conference Impressions

by Daisy Harris; Unionville-Sebewaing Area High School Teacher

On Saturday March 10, 2012, I had the opportunity to attend the MSTA conference held in Lansing, Michigan. Three of the sessions I attended really stood out, giving me information I'm sure I can take back to my classroom and implement in a positive manner. These sessions were, 100% Student Engagement As Soon As They Enter; Using Web 2.0 Tools; and Helping Students Retain Information Past the Door! This has been a year that I have struggled with student behaviors in the classroom; it was helpful to hear that I am not the only teacher who has this issue.

During the session *100% Student Engagement As Soon As They Enter*, Teresa Morton and Jeremy Milarch mentioned some of the behaviors that I encounter on a daily basis in my high school classes. Their presentation on meaningful bell work actually would accomplish two objectives for me. First, most importantly, it would focus the students on the day's lesson. Second, it would meet an administrative goal we have been asked to implement.

Ms. Morton and Mr. Milarch gave two different approaches to meaningful bell work. Ms. Morton had the students answer a question each day based on previous lessons. There may or may not be a follow up discussion, depending on what the question was and how the class responded to the question. She collected the bell work on a daily basis. Mr. Milarch had his students use a journal approach. Some of his questions would be on previous lessons and some came from science in the news. Students had a week to complete the questions and the journals were collected on Friday. Again, discussion length depended on the questions and the interest of the class.

The session *Using Web 2.0 Tools* became useful the very next week, as our school's technology person sent out an e-mail about a Web tool called Prezi. It felt good knowing exactly what Prezi was, as I had just seen it demonstrated by Terrie Robbie. Ms. Robbie did an excellent presentation showing several different tools that are available for free on-line, though she did mention that many of these tools do have a charge if you want to be able to have full access to the sites. Not only did Ms. Robbie demonstrate several of the web tools, but she also gave us a list of many more and a short explanation of what they can do for our classroom.

Knowing that we live in the technology age, any advantage that I can get to keep up with my students is helpful. Our school is striving to bring more technology into the classrooms, but on a limited budget, our prospects for a funding windfall are unlikely. It has been suggested that students be allowed to bring in their own devices (cell phones, I-pads, e-readers, laptops, etc); yet school policy is vague on how students will be allowed to use these devices once brought into the school. Having the information about what is available on the web for students to use and create projects would allow students to use their devices at home. I came away from this session very excited about trying out many of these websites to see exactly how I can incorporate these tools into my lesson plans.

The third session that I felt would be really useful to me was *Helping Students Retain Information Past the Door* facilitated by Amie Anderson. This session contained information on another objective our administration is requesting: exit slips. Ms. Anderson talked about brain research and how as teachers we need to be able to help students move information from short term memory to long term memory. She said that she had found the use of exit slips to be beneficial for students by holding them responsible for listening to the lesson and being able to then respond to a question about the lesson before they left the room. Questions that had the students apply the information from the lesson she said were the best type of questions for helping to transfer knowledge from short term memory to long term memory.

While the information from this session wasn't really new, it was a great reminder to do something that has slipped from my classes in the interest of time. Ms. Anderson reminded us that it is time consuming to do the exit slips, but if the students aren't retaining the information, then it is worth taking the time to help them remember what you are teaching. Otherwise you will be spending even more time re-teaching the lessons. One of the concerns brought up was grading the exit slips, which she said you could grade several different ways that would not be too time consuming for teachers. One of the ways was as simple as a credit/no credit for doing the exit slip. It also gives the teacher an opportunity to check for understanding of the daily lesson.

I am pleased that the MSTA continues to offer this yearly conference. It is a wonderful opportunity for science teachers to be able to communicate and share teaching experiences with each other. Not only were the sessions rewarding but it was fun to be able to walk through the vendor's section and see all of the different materials that are available to science teachers. A huge thank you to Mr. Dave McCloy, my MSTA regional director, for offering me the scholarship to be able to attend this year's conference.

BIOLOGY BONANZA - ALWAYS A FAVORITE!!

By Jessica Menard, Escanaba High School; Escanaba, Michigan

First of all, I would like to say that I really enjoyed attending the MSTA Conference. This was my first time attending. I found most of the sessions very useful and insightful. However, my favorite session was "Biology Bonanza for Beginners" presented by Heather Peterson from Holt High School. This is my second year teaching biology. I really enjoy teaching the content material, however, I feel that I need more activities and labs to help "beef up" and support my lessons. I was hoping this session would do just that ... and it did! First, Heather explained the organization of her biology course. Holt High School has trimesters. In biology, during each trimester, a case study is run. The content is organized around that particular case study. For example, in the first trimester, the "Giardia Case Study" was run. During this time, students covered concepts including scientific method, body system overview, organic chemistry, cellular transport, enzymes, cellular energetics, protein synthesis, and much more. I was pleasantly surprised by this layout. I think it makes a lot of sense. What an authentic way to present biology content. How

continued on page 6

“CLIPS and STRIPS: Matter and Energy Made Simple”

By Sarah Williams, Mason County Eastern Middle School/ High School

“CLIPS and STRIPS: Matter and Energy Made Simple,” with Jane Rice, was my first MSTA session ever. After I left, I felt like I had won the session lottery! So much useful and practical information was shared, I felt that if I didn't attend another session, I could still go home happy. Ms. Rice shared with us how we can use paperclips joined together to create compounds, observe the law of conservation of mass and whether or not a substance is a pure substance or a mixture. Strips of paper were used to demonstrate how energy transformations can occur. An energy transformation “game” was also demonstrated.

In the age of small budgets, “CLIPS and STRIPS” provided practical, hands-on activities that could reach any level of science student and didn't require costly materials, just paper clips and pieces of paper. The included packet of color-coded paper clips and transparency strips was very helpful. Not only did it allow us to apply the knowledge she just shared, but also gave us an idea on how to set up the packets for our students.

Many of the sessions I attended gave us information, but didn't necessarily show us how to do the project or apply the information. Jane Rice did a wonderful job on giving us the information, then giving us time to try the project. We were also able to discuss with our neighbors on how we could apply this to our classrooms, which expanded the number of possibilities on how the information could be used. As I left, my brain was reeling on how I could tweak the materials to use in my higher level chemistry course.

If this session is offered again, I would highly recommend it to any physical science or chemistry teacher. It offers ideas to help present material in a clear and concise manner on topics that many students find difficult. The handout and take home materials are laid out in a manner so in 6 months or a year, one could go back, review it and remember what was presented.

A Tribute to our Mallinson Award Winner...

By Robby Cramer, MSTA Executive Director



Dr. Mark Jenness Receives the George G. Mallinson Award for 2012

The Michigan Science Teachers Association Board of Directors are proud to announce that they have selected Dr. Mark Jenness to receive the George G. Mallinson Award for 2012.

Faced with the daunting task of speaking about Dr. Mark Jenness' professional practice spanning from 1966 to the present, I decided to consider Mark's professional practice as our George G Mallinson candidate and conduct my own inquiry. The three questions I chose to assist me in this endeavor are from Leo Tolstoy short story The Three Questions.

Tolstoy's questions are: When is the best time to do things? Who is the most important one? What is the right thing to do? These three questions have mystified people for hundreds of years and indeed, even today, as evidenced in this picture book by artist Jon J Muth, as he wrote and illustrated the story of a young boy, Nikolai, who sought counsel from Leo, the wise old turtle, who lived in the mountains. The more I think of Mark's practice, I think I can see signs of Leo the wise turtle in Dr. Jenness' work.

After conferring with my colleagues on the Board, many leaders from the Math Science Center Network, and Mark's colleagues, I would like to offer this evidence to support our claim that Mark's professional practice does, in fact, address the answers to those three important questions.

Question number 1:

When is the best time to do things? Mark believes...*The important time is now (preferably before you actually write the NSF grant) to develop an electronic network, such as Building a Presence for Science (now Science Matters), develop the paperwork request to be a Lead state in the development and implementation of the Next Generation Science Standards or design an instrument to measure the level of implementation of an inquiry lesson!* I think that is why, even in retirement after his 44 year public education service, Mark continues to step forward to develop a needs survey of Michigan teachers that documented the need of Science Reform that in turn led to the Michigan's application and acceptance as a “Lead State” in the development and implementation of the new science standards being coordinated by Achieve, Inc.

Question number 2:

Who is the most important one?

For Mark, *the most important ones* are the children - all children, all ages of children and adults... It might be the summer camp students at the Kalamazoo Nature Center, the preschoolers watching Channel 3 Clubhouse to see the animals Mark brought to share on the TV show, or his students taking classes at Higgins Lake or Binder Park Zoo. Sometimes it was a colleague searching for the perfect word to convey meaning from the statistical data gleaned from program surveys and evaluations.

Question number 3:

What is the right thing to do?

And of course *the right thing is to do* is to do good for the one who is standing at your side.

Mark, at this moment you are standing shoulder to shoulder with colleagues, science classroom teachers, and science leaders who will continue to expand and build your vision of excellence in science teaching and learning by reflecting, analyzing, and mining the data for evidence to make wise decisions on next steps.

We will remember the premise that all students can learn science through inquiry. We will remember that we can make a difference by sharing with our students ways to be responsible for the world around us to keep it litter free and doing our part to recycle. Furthermore we will seek ways to share with educators to help them reflect on their professional practice.

Mark, thank you for being our “Leo the wise turtle” who we go to seek advice to help us to make sense of our dreams for improving science education for students. It is with deep respect that on behalf of the MSTA Board of Directors that we have presented this award to Dr. Mark Jenness.



Oakland University Pre-Service Elementary School Teachers Teach and Learn at MSTA Conference

By Tim Larrabee, Director of Higher Education

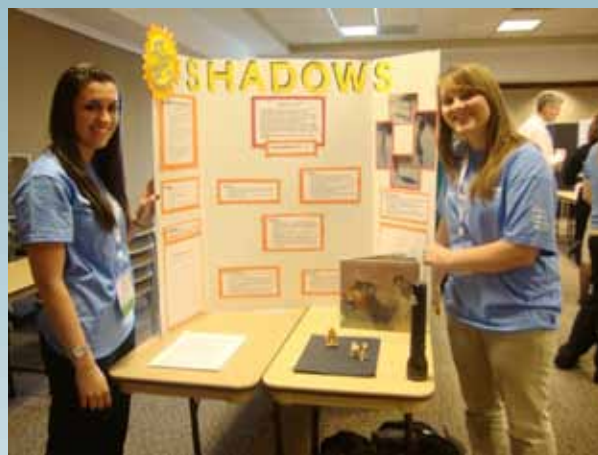
On Saturday, March 10, 2012, pre-service elementary-middle level teachers from Oakland University presented inquiry-based lessons at the 59th annual MSTA conference in Lansing. These engaging presenters are enrolled in their elementary-middle level science teaching methods course at Oakland University, and they are nearing the end of their coursework as they move toward their full-time student teaching assignments.

For the last few years, elementary-middle level science methods course students at Oakland University have been offered opportunities to present their student-developed inquiry lessons at professional science teaching conferences and earn class credit. For many students this was the first professional conference they had attended; for all it was the first time they had co-facilitated at one. The room in the Lansing Center was filled with excited students standing in front of their display boards, accompanied by materials participants could manipulate to test out their predictions. Each had prepared handouts attendees could take to guide the implementation of the lessons when they returned to their classrooms.

The experience for our students, and for session attendees, has been rewarding. Francesca Segatti wrote, "I would have never gone so early in my career if it had not been for this assignment. I believe that it would be beneficial for all students to experience this conference and all that it has to offer." Kelly Rhodes shared, "Some of them [middle and high school teachers] gave us some really great ideas on how we could tailor this lesson for different grades; or enrichment activities we could use to make the lesson even more successful. I was surprised at how many of the teachers said

they wanted to use our third grade lesson in their middle and high school classes."

As a teacher educator, and as MSTA's Director of Higher Education, I urge other science educators in teacher preparation programs around the state to find a way to convince your future teachers to not only attend MSTA conferences, but also facilitate sessions. Oakland University students who have taken advantage of this opportunity have gained confidence in their science teaching skills, have found support and insights from experienced teachers, and have established themselves as professionals embarking on a new career. All things we wish for all of our student teachers.



Kelly Rhodes and her partner presenting their 5E inquiry lesson at MSTA's 59th annual conference.



Brenda Earhart, MSTA's 2012 Distinguished Service Award winner, with Mike Klein, President, MSTA.

Biology Bonanza - continued from page 5

inspiring! My high school is currently going through scheduling nightmares. Trimesters have been a point of discussion. If we end up going to trimesters, I will really look into setting up my biology course similar to that of Holt High School.

Heather was a really good presenter. She made the session fun. All of us were engaged. What I liked most about the session was that all of the ideas/activities/labs she gave to us could be used to "spice up" content. In fact, I tried her "building respiratory chambers" activity just the other day and the students were very engaged. They were having fun and learning at the same time! Heather is a big fan of inquiry. Therefore, her activities are all about the students discovering on their own ... trying to put the pieces together. Heather gave handouts regarding these various activities, however she also encouraged us to contact her if we needed any other resources... (hpeterso@hpsk12.net) P.S. If you want any feedback for next year, I would make the sessions a little longer. Forty-five minutes was not long enough to get all the information in ... just food for thought!



2012 Award Winners Honored at Luncheon

By *Marlenn, Maicki, MSTA Awards Committee Chair*

Congratulations to the Winners of the 2012 MSTA Educators of the Year!

The Michigan Science Teachers Association (MSTA) would like to extend our congratulations to the winners of the 2012 MSTA Educators of the Year!

MSTA applauds the innovation and commitment that these educators have shown to their students and to the teaching profession. The following educators have been selected from a statewide pool of applicants:

The winning Elementary, Middle School, High School, and College Science Teachers of the Year were chosen for using or modeling best practices, inspiring their students, demonstrating innovative teaching strategies, being excellent role models for students and other teachers, demonstrating leadership, and exhibiting a passion for science and for teaching.

Elementary Science Teacher of the Year - *Rebecca Durling* - Discovery Elementary School, Williamston



Middle School Science Teacher of the Year - *Susan Tate* - Whitehall Middle School, Whitehall



College Science Teacher of the Year - *Dr. Desmond Murray* - Andrews University



High School Science Teacher of the Year - *Mary Lindow* - Battle Creek Area Math and Science Center, Battle Creek



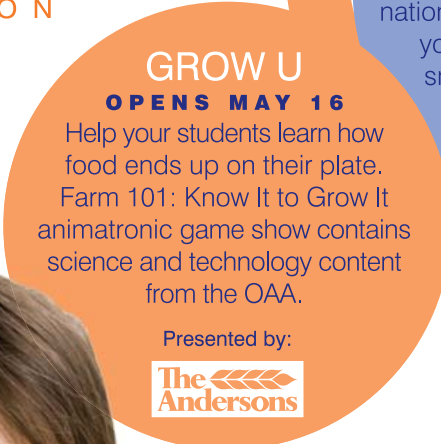
The winning Science Teacher of Promise, ***Gary Abud*** from Grosse Pointe North High School, Grosse Pointe was chosen for inspiring his students, demonstrating innovative teaching strategies, demonstrating the potential for science leadership, and exhibiting a passion for science and for teaching.



The winning Informal Science Educator, ***Sarah Halson*** of The Greening of Detroit, was chosen for her unique and extraordinary accomplishments, active leadership, scholarly contributions, and direct and substantial contributions to the improvement of non-school based science education over a period of time.



Congratulations! Thanks to all who applied but were not selected to receive an award in this year's competition. The MSTA Educators of the Year Awards are given annually at the state convention. Please consider submitting names for the next round of awards. The deadline for the upcoming annual award nominations is July 1, 2012. The end of the school year is a perfect time to submit a colleague. Mark your calendar today!



NEW!
for your students

EAT IT UP!
NOW OPEN

Get your students moving!
This new exhibition, focused on health and nutrition, aligns to national health standards to teach your students how to make smarter choices each day.

Presented by:
 PROMEDICA

GROW U

OPENS MAY 16

Help your students learn how food ends up on their plate. Farm 101: Know It to Grow It animatronic game show contains science and technology content from the OAA.

Presented by:
 The Andersons

EDUCATOR OPEN HOUSE*

SATURDAY, SEPTEMBER 1 • 10am-5pm

Experience our 2 new exhibits and hands on demonstrations and familiarize yourself with our educator resources to make the most of your class field trip.

**Teachers and their family are free with id.*

Come to Open House and enter to win a Science Festival for your school!

1 Discovery Way • Downtown Toledo, Ohio • 419-244-2674 • imaginationstationtoledo.org

We're Growing!

With 2 new permanent exhibitions, both aligned to academic content standards, Imagination Station is an educational resource like no other.

Now OPEN! Get your heart pumping as you take on the Wheel of Fire and the Heart Rate Rally, Smash Your Food to smithereens, and literally Get in the Action. [Eat It Up!](#), presented by ProMedica, is a highly interactive exhibition focused on nutrition and exercise tells the story of how the choices you make today affect your body. Eat Smart. Play Hard. Have Fun. The choice is yours!

Slated to open May 16th, [Grow U](#), an agriculture focused exhibition presented by The Andersons, consists of 7 hands-on exhibits

and an animatronic game show experience called Farm 101, where you have to "Know It to Grow It".

For more information or to schedule a field trip, visit imaginationstationtoledo.org or call [419.244.2674](tel:419.244.2674).

Mark your calendars now for our Educator Open House, Saturday, September 1. We're inviting teachers and their families to visit Imagination Station and experience our 2 new exhibits, hands-on demonstrations and familiarize themselves with our educator resources to make the most of their upcoming class field trips. Educators that attend the OPEN HOUSE can enter to win a Science Festival for your school! Teachers and their families will get in FREE with proper ID.

Dual Membership

Twice the opportunity. Twice the service.

Association for Middle Level Education formerly National Middle School Association

Middle School Journal— Five issues a year

Middle Ground Magazine—Four issues a year

Middle E-Connections—monthly e-newsletter

The Family Connection—Four issues a year

MiddleTalk Listserve—on-line collaboration

Member Access to www.amle.org

Professional Development Discounts to all AMLE events

Bookstore Discounts—20% off all AMLE books and products

Voting for Board of Trustees and AMLE leadership

Michigan Association of Middle School Educators

Publications- Newsletters, Teacher Tips, Legislative Updates, Journal, Classroom Connections

Yearly conference strictly devoted to middle level with sessions by building practitioners

www.mamse.org and our link to NMSA as the only recognized affiliate in Michigan

Grants and Recognition Awards

Dual Membership Form

Association for Middle Level Education and
Michigan Association of Middle School Educators

Name Mr. Ms. Dr. _____

Job Title: (choose one) Principal Asst. Principal Superintendent/Asst Superintendent
 Central Office Curriculum Guidance/Advisory Library/Media Specialist
 School/Organization State Department Head Technology Teacher
 University Administrator University Professor Other _____

Institution _____

Work Address _____

City _____ State/Province _____

Zip/Postal Code _____ Work Phone (_____) _____

Fax (_____) _____ Phone (_____) _____
 home cell

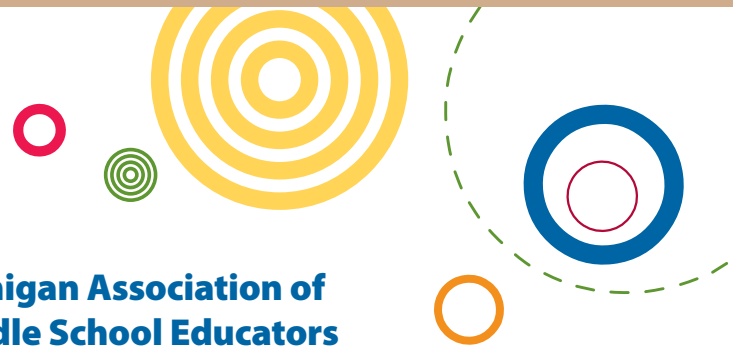
E-mail _____
(Required to receive online benefits. AMLE will not sell your e-mail address to other organizations.)

May we share your name with organizations requesting our mailing list? Yes No

Demographics

How long have you been in the education field? 0–4 years 5–9 years 10–14 years
 15–19 years 20–24 years 25–29 years 30+ years

If you are a classroom teacher, check all that apply: Art Foreign Language Language Arts
 Math Music Physical Education/Health Science Social Studies
 Special Needs Technology Other _____



Association for Middle Level Education
formerly National Middle School Association
www.amle.org



Fees

\$100—Membership to Association for Middle Level Education and Michigan Association of Middle School Educators

Payment Complete payment must be received with registration form.

Total Payment \$ **\$100**

Check—Payable to AMLE in U.S. funds. (\$20 fee for returned checks)

Valid Purchase Order enclosed. PO# _____

Visa MasterCard American Express Discover

Card # _____

Exp. Date (mm/yy) _____ CSV# _____

Cardholder Name (please print) _____

Authorized Signature _____





Enough is enough!

Now is the time to stand up against bullying. Join Defeat The Label on Stand4Change Day and be a part of this historic rallying point for the anti-bullying movement.

Did you know?

- Every 7 minutes a child is bullied. (*The U.S. Department of Justice*)
- 1 in 7 students is either a bully or a victim of bullying. (*www.education.com*)
- 160,000 students stay home from school every day for fear of bullying. (*National Association of School Psychologists*)

Imagine millions of students and teachers across America **standing for change** to demonstrate their commitment to putting an end to bullying. On **Friday, May 4, 2012 at 12 p.m. EST**, that image will become a reality as we all stop, stand and let the world know we will no longer tolerate bullying in our schools and our communities.

Let's use peer pressure for something positive and bring attention to bullying, a serious issue that affects everyone – bullies, victims and bystanders.

WHEN? Let's make history on **Stand4Change Day** by standing together for five minutes, united against bullying on **Friday, May 4 at 12 PM EST**.

WHERE? Every classroom, in every school in America.

WHY? If students in every school across the nation "**Stand4Change**" on May 4, they will not only set the record as the largest group of people standing for a single cause at one time, they will draw national attention to this critical issue.

HOW? Visit www.stand4change.org and register your school as a participant in Stand4Change Day on Friday, May 4.



Stand4Change was developed by Defeat The Label and Ken Kragen.
Ken Kragen is the creator and organizer of "We Are the World", "Hands Across America", and Cisco System's "NetAid".

Supported by these organizations:



CURRICULUM IDEAS

Cool Tech Tools for Science Teaching and Learning

By Mike Klein, MSTA-Past President, Macomb ISD

Innovative science educators are always on the lookout for new and exciting ways to introduce concepts, help students develop models, and interact with content. Technology can provide wonderful opportunities to support these goals, but can also cause frustration as teachers attempt to find appropriate tools that provide the right kind of instructional support. So, when I learned about an online tool that allows students to explore new understanding as they develop richer and more meaningful models, and does it for free with lesson plan support, it seemed important to share it with the MSTA membership.

The online tool that I am referring to is the PhET interactive simulation site that comes from the University of Colorado at Boulder. While it has been around for awhile, I am finding that it is still new to many science educators. This free access site, funded by grant money and private donations, provides fun and interactive, [research-based](#) simulations of physical phenomena. Specifically, PhET is a:

“research-based approach, incorporating findings from prior research and testing, that enables students to make connections between real-life phenomena and the underlying science, deepening their understanding and appreciation of the physical world. It’s primary goal is to help students visually comprehend concepts. PhET simulations animate what is invisible to the eye through the use of graphics and intuitive controls ... as the user manipulates these interactive tools, responses are immediately animated thus effectively illustrating cause-and-effect relationships as well as multiple linked representations (motion of the objects, graphs, number readouts, etc.)

To ensure educational effectiveness and usability, all of the simulations are extensively tested and evaluated. These tests include student interviews in addition to actual utilization of the simulations in a variety of settings, including lectures, group work, homework and lab work. (from the PhET website)

There are over 100 simulations available by science course and content area. They run in almost all web browsers using Flash and Java (unfortunately, this means they won’t run on the iPad) or you can download them to your computer and run them offline. What makes these simulations even more useful to the classroom teacher is that most are accompanied by grade level “Tips for Teachers” and “Teaching Ideas” written and submitted by science educators middle school to college. Many of these tips and ideas provide printable student instructions, scaffolded support documents and connections to additional activities and assessments for use in the classroom. To learn more and access these free, online simulations go to: www.phet.colorado.edu



(Image taken from www.phet.colorado.edu)

CURRICULUM IDEAS

Maple Sugaring as a Classroom Experience

By Andrea Thelen, Lakeville Middle School, Otisville, MI

My initial experience with the SugarBush program was during my first year of teaching. The students all knew what it was; I only knew that we were going on a field trip to the middle school. Upon entering the media center, my students were divided up and paired with eighth grade students to tour the woods, learn how to tap trees, collect sap, and observe the evaporation process. I wish that I would have known we were going to be in the woods-I wore heels.

After we boarded the buses and returned to school, we journaled about our experiences, wrote thank you letters to the guides and volunteers. I did not think too much about SugarBush again until I was transferred to the middle school.



Throughout my first semester at the middle school I heard rumors of “SugarBush,” but ignored them. At the end of February, I could no longer ignore the rumors. Two former teachers and seven other community members invaded my classroom for a day and I was dubious when they brought in a giant log and buckets of hammers and hand drills. They instructed our seventh graders in the art of “tapping trees.” To further tie in our science curriculum, the volunteers review the parts of flowering plants, capillary action, and photosynthesis. My students were engaged and laughing throughout the entire presentation.

We divided the students into groups and prepared to venture out into the woods behind our school with hammers and hand drills. I was not completely sold on the idea of allowing groups of teenagers loose in the woods with hand tools, but I did not have a choice. Once we met by the fire (my saving grace against the cold), my students were grouped and paired with a member of the community. The volunteers supervise and teach the students how to tap the trees and attach the hoses and buckets. To my amazement, I did not have one behavior problem that day. Ok, I did lose three students in the woods, but they wondered back in time for lunch. My students took their jobs seriously, and actively participated in the project.

This is a school-wide service learning project that is run by our science department. Our sixth grade students are responsible for collecting sap and tracking the total amount of buckets collected. Our seventh graders tap and untap trees as well as clean up equipment used and the woods after the project is completed. The seventh graders also aide in cutting and storing wood for the fire and helping to maintain the SugarBush section of our property. The students also review weather when they research which conditions cause the sap to begin to flow. Namely it has to be below freezing at night, and above freezing during the day. Since I have to spend two whole days outside, I was overjoyed to learn this fact! The weather conditions do not last long, so we begin by tapping the trees in the snow, and end by untapping the trees in the mud at the end of March. We also participate in a project where we monitor our local creek and observe the changes created by the melting snow.

Our eight grade students serve many important roles. After submitting an application they can be selected as guides. The guides take elementary students from our district and the surrounding districts through our property and explain the project. After their tours are complete, the students gather around the fire, to enjoy cornbread with syrup, receive hands-on instruction in tapping trees, and hear about local myths. The eighth graders can also aid in cooking the corn bread, help evaporate the sap, and bottle the syrup. Once the project is complete, the syrup is sold. Any profits made are used to buy new supplies and the rest aids our student council.

To tie in our math curriculum, the groups are also responsible for tracking the number of trees tapped, the location of the trees, and how many taps total are used. Some trees can take more than one tap! Back in the classrooms, we create graphs of our data, and compare our data to previous years. We also have a side project, where one of the volunteers works with a group of students to tag each of the trees with a GPS so we can track how much sap is collected from each tree. Our poetry class also went out to write poems about the woods and our career class researched jobs related to the SugarBush process.

This year will be my fifth year participating in the project, and our 27 year of running our SugarBush program. I have worked with all three grades, and experienced all aspects of the project. Our students benefit by getting out of the classroom to directly apply their learning in math, science, and language arts. They also exhibit high levels of maturity, develop presentation skills and learn to work with members of our community. This project allows senior members of the community to work with our students, and share their knowledge. Our school benefits from the positive press in the local papers and television. In short, our SugarBush program drives positive community relations, allows students hands-on learning opportunities, and helps our school project a positive image to our stakeholders.

CURRICULUM IDEAS

Free Online Curriculum on Climate Change!

I am Vicki Osis and I taught an online course for educators from Oregon State University about the topic of climate change for two summers. I put so much work into the course including writing lectures and searching for teaching applications. For each of the topics I looked for more ways to disseminate the information. The information is provided below. It will download the materials onto the desktop of the users. There is NO charge. It's available for teachers to adapt and use in their classrooms. Please take a look at it and share it with Michigan Science Teachers.

Thanks, Vicki Osis

This URL will download a folder with four teaching activities that not only teach climate change issues but also activities that discuss how science is done. With the denial and efforts to block addressing climate change, climate scientist's research is being questioned.

The download folder is entitled TeachGCC Copy the url into your browser and hit enter and a zip document will show up on the desktop. Click on it and it will open to the folder.

<http://dl.dropbox.com/u/15374028/TeachGCC%20.zip>

A 2012 Online course for teachers is at the URL below. It includes 20 folders with "lectures" on climate change topics with lists of teaching applications for each topic for a variety of grade levels.

Copy this URL into your web browser and hit enter. A folder containing 20 folders with lectures and teaching applications for a variety of grade levels will be downloaded as a zip document. Click on it to open. This was offered as an academic online course for teachers for Oregon State University.

<http://dl.dropbox.com/u/15374028/2012onlinecourse%20%20.zip>

Web Gem-Chemistry

Submitted by Pete Peterson, MSTA Region 7, Shelby High School, Shelby, MI

STEM- Science, Technology, Engineering and Mathematics is the current buzzword for science teachers. I know that the most difficult part of incorporating STEM is finding the "real world" engineering/technology applications of some chemistry and physics principles. Recently, while teaching a unit dealing with properties of matter, I came across a nice web video which shows both the technology and engineering involved in the creation of a new form of body armor for prison guards. The video describes the benefits/drawbacks of the Kevlar "bulletproof" vest and then goes on to explain how the vest can be enhanced by the addition of a Non-Newtonian fluid (silica nano particles) to create a vest which can be used to protect prison guards from the stabbing hazards. Check out Liquid Armor at You Tube- <http://www.youtube.com/watch?v=rYIWfn2Jz2g&feature=related>

Flying Wild

MAEOE is proud to sponsor Flying WILD in Michigan. Flying WILD is a curriculum and activity guide introducing teachers and students to the study of birds - their habitats, adaptations, migration, mating, and observation. Classroom activities bring these concepts home in fun, hands-on ways. In addition, this guide can also help educators set-up a birding festival and community service projects related to birds. Activities are geared towards 5th - 8th grade students, but can be modified up or down for other grade levels. All activities are coordinated with national science standards.



To learn more about the Flying WILD Curriculum Guide, go to <http://www.flyingwild.org/guide.htm>

State Coordinator: Mike Mansour
mmansour001@comcast.net
248-672-0682

[Click here for a printable flyer.](#)

[Workshop Calendar.](#)



CURRICULUM IDEAS

WHAT WAS THAT YOU SAW IN THE MICROSCOPE?

By Yonee Bryant-Kuiphoff - Middle School Director, Linden Grove Middle School, Kalamazoo, MI

We are beginning one of my favorite, but most frustrating, units - Cells. I love the discoveries that my students are excitedly pointing out of the various structures of cells they see in the microscope, but their illustrations don't come close to matching what they are describing or seeing - that's the frustration.

I started using a technique that I learned a few years ago at NSTA in Boston. In an all-day workshop at the Boston Nature Center, we learned about an art technique called Blind Contour Drawing. This technique trains the eye to slowly move around the outline of the object while the hand slowly draws what the eye traces.



I started this technique with my students last year, and it has made quite a difference in their lab drawings. In other words - I can both see and identify the structures they are discovering.

It is a very easy thing to teach and doesn't take a lot of class time. The basic technique can be taught in as little as one class period, and you can use your morning warm-up to practice the technique.

I start with simple shapes so that even my most drawing-challenged students can experience early success. I have the students put blank paper off to their right - or left if they are lefties, and explain that this is a technique that will help them draw better lab

illustrations. I place the object under the document camera and put it on the x-ray setting (an overhead is even better). I illustrate by drawing the shape on the board, and explain to slowly let the eye follow the outline and the hand move along the shape without looking at the paper.

I then have the students begin practicing... invariably there are students who peek, and my students have become inventive at helping their peers succeed - last year's group prevented peeking by placing their notebooks to block their eyes from looking. Slowly, as the rest of the students begin getting excited about their drawings, the peeking stops. We start out simple then go on to harder drawings. I have used baby toys like tops, stars and other simple shapes, and have graduated to twigs, feathers, and plastic zoo animals - giraffes, elephants, ostriches. Anything you can think of is probably fair game for students to practice drawing. Imagine my students' elation when their giraffe actually looks like a giraffe. They want to keep practicing!

This excitement actually spills over into the lab as the students see the different types of cells and their structures, and because of my reminders to use this technique to draw them, their lab illustrations turn into something that they can actually use and learn from, and I can actually see and understand what they are seeing and learning.

Try this technique for yourself and see if it will make a difference for you. It did for me, and my students' lab reports reflect it.



M I C H I G A N

JOINT
EDUCATION

C O N F E R E N C E

Connecting Across the Curricula

- *Implementing Best Practices*
- *Integrating Technology*
- *Enhancing Instructional Leadership*
- *Maximizing Student Achievement*

Wednesday, June 20, 2012

Eastern Michigan University - Student Center
Ypsilanti, Michigan

For FULL details
and information
go to www.mijec.org

*Registration Deadline is
Monday, June 4, 2012!*

*Michigan
Joint
Education
Conference!*

Join...



Michigan Association of
Media Educators (MAME)



Michigan Association of Middle
School Educators (MAMSE)



Michigan Council for
the Social Studies (MCSS)



Michigan Council of Teachers
of Mathematics (MCTM)



Michigan Council for Exceptional
Children (MCEC)



Michigan Science Teachers
Association (MSTA)



Michigan Association for Computer
Users in Learning (MACUL)

*...and other partners for
the Joint Integrated
Education Conference!*



Save
The
Date

Come
Celebrate!

Michigan Science Teachers Association's
60th Annual Conference
March 8-9, 2013

At Eastern Michigan University's
***NEW* Science Building & Student Center**

(Professional Development sessions will be offered on Thursday, March 7, 2013)