MSTA Newsletter

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Thoughts from your Executive Director

By Robby Cramer, MSTA Executive Director

The theme of the 59th MSTA Annual State conference is Pure Michigan Science. Our state conference this year will be held at the Lansing Center. Your MSTA Conference Leadership is busy planning to continue to be a professional support for you in your Michigan classroom with sessions filled with Michigan data, real world examples and innovative Michigan master teacher presenters!

The preconference professional development sessions will be held on Thursday March 8. The full conference opens on Friday March 9 and Saturday March 10. Educators from across Michigan and beyond will deliver over three hundred and fifty sessions.

Listen to your colleagues to discover new ways to increase higher level thinking in student discussion and discourse. Workshops on technology will enable educators to explore the use of iPads and Web2.0 Tools, Google Docs, Podcasting, and Building Underwater Robots in the Classroom as part of STEM Education. Many sessions will be based upon real world data obtained from right here in the state of Michigan. Several sessions will provide ways to implement student research and investigation for all students, from kindergarten to high school.

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From the Desk of the MSTA President - Michael Klein

Getting Ready for the Next Generation Science Standards

For the past year and a half, schools have been working hard to implement the Common Core State Standards (CCSS). These new standards have garnered significant attention and resources from local districts and, with a wealth of professional development at their disposal, teachers are well on their way to becoming fluent in the new language as it pertains to mathematics and ELA. But what about new national standards in science? Will they be a part of the CCSS? When will they be available? Will the MSTA and K-12 teachers have any input into what is included? I have heard all these questions and many more. The rest of this column will attempt to address many of them and help us prepare for the next generation of science standards.

Is there science in the CCSS?

I addressed this question in the December newsletter, but it is worth repeating. The CCSS only contains standards for mathematics and ELA. There are standards for reading and writing in science and that may have caused some confusion. These content area ELA standards are important and should have the attention of science educators, but they do not in any way address core science content knowledge. It was never the intent of the CCSS to address science content and so this is now being tackled in a separate effort titled the Next Generation Science Standards (NGSS). This new effort at creating a set of national standards has been in process for well over a year and already has the promise of adoption by over half of the states, including Michigan.

When will we get to see the new standards?

This question requires a little bit of crystal ball work, but the committee working on the standards has provided some sense of a timeline. The NGSS Framework for K-12 Science Education has already been made available (July 2011) and has been serving as a guiding document for both the writing committee and for educators interested in an early glimpse at what might be included in the final standards. The actual standards themselves have been completed in draft form and are being reviewed by state teams in preparation for distribution to all science professionals in the next month or so. The final document is expected to be available sometime near the end of 2012.

What role has the MSTA played in the development of the NGSS?

Your MSTA board has been actively involved in the state team review

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process. With four board members on the internal review team we are extremely well represented and have been able to have a significant impact in the process and on the type of feedback being offered to the writing committee.

What role can I play as a science educator?

Keep a close lookout in the next month or so for the online release of the draft document. This will be your chance to provide feedback on the standards before anything becomes final. We will notify you when the window for feedback opens, be sure to add your voice.

How can I begin preparing now for the standards?

Since the conceptual framework first came out this past summer there has been a great deal of conversation about what it contains. You can find information about the framework and the pending standards, including the complete 283 page document at http://www.nextgenscience.org. However, much of the most important information can be distilled from the three dimensions that make up the majority of the framework. The three dimensions include:

1. Scientific and engineering practices
2. Crosscutting concepts that unify the study of science and engineering through their common application across fields
3. Core ideas in four disciplinary areas: physical sciences; life sciences; earth and space sciences; and engineering, technology, and the applications of science.

Let's take a closer look at each of these three. First in the document are the science and engineering practices, often thought of as the inquiry and process standards. These are the practices that are a part of science and that are critical to helping students become engaged in meaningful science process. The eight practices that emerge as essential elements of any K-12 science and engineering curriculum include:

Asking questions (for science) and defining problems (for engineering)

1. Developing and using models
2. Planning and carrying out investigations
3. Analyzing and interpreting data
4. Using mathematics, information and computer technology, and computational thinking
5. Constructing explanations (for science) and designing solutions (for engineering)
6. Engaging in argument from evidence
7. Obtaining, evaluating, and communicating information

The following quote taken from the document Science for All Americans, Project 2061 by the American Association for the Advancement of Science (an earlier attempt in the late 1980's at creating a set of national standards) provides insight into the genesis of crosscutting concepts and the second dimension of the conceptual framework.

> *"Some important themes pervade science, mathematics, and technology and appear over and over again, whether we are looking at an ancient civilization, the human body, or a comet. They are ideas that transcend disciplinary boundaries and prove fruitful in explanation, in theory, in observation, and in design."*

The framework identifies seven concepts that are fundamental to understanding science and that provide organization for connecting learning in science and engineering. These seven crosscutting concepts are identified in the NGSS Framework for K-12 Science Education as:

Patterns - *Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.*

Cause and effect - *Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.*

Scale, proportion, and quantity - *In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.*

Systems and system models - *Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.*

Energy and matter - *Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.*

Structure and function - *The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.*

Stability and change - *For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of the system are critical elements of study.*

The final dimension discussed in the framework relates to the disciplinary core ideas. The framework refers to them as the focal point for the most important aspects of science curriculum, instruction and assessment. All core ideas come from four domains:

Physical Sciences
- PS 1: Matter and its interactions
- PS 2: Motion and stability: Forces and interactions
- PS 3: Energy
- PS 4: Waves and their applications in technologies for information transfer

Life Sciences
- LS 1: From molecules to organisms: Structures and processes
- LS 2: Ecosystems: Interactions, energy, and dynamics
- LS 3: Heredity: Inheritance and variation of traits
- LS 4: Biological evolution: Unity and diversity

Earth and Space Sciences
- ESS 1: Earth's place in the universe
- ESS 2: Earth's systems
- ESS 3: Earth and human activity

Engineering, Technology, and the Applications of Science
- ETS 1: Engineering design
- ETS 2: Links among engineering, technology, science, and society

To be considered for the final document, any core concept must include elements having broad importance across multiple disciplines, providing key understanding to more complex ideas, relating to student interests or concerns, and be teachable and learnable across multiple grades.

Look for more updates to be released very soon. MSTA remains a critical "go to" organization for the latest science curriculum information!

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- Courses aligned with the Michigan Curriculum Frameworks and Benchmarks for Science and the DI (Integrated Science Endorsement).

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brain bee at michigan state university

UPCOMING "BRAINY" EVENTS!

Neuroscience Art Competition - HURRY!!

Everyone can appreciate the importance and beauty of the brain! From controlling delicate movements to interpreting the passion of emotions and everything in between, our brains are the center of who we are. Celebrate the range of what they are capable of through art. Use current neuroscience topics to inspire your artwork and let your art contribute to the general understanding of the brain.

Who: Michigan students in grades 6-8 and 9-12
What: An art contest with submissions inspired by current neuroscience topics
When: Postage dates after February 6th, 2012 will not be accepted. Submissions may also be dropped off in person by February 8th, 2012

Winners will receive $100 in cash! Their art will also be displayed on the MSU campus and on Brain Bee at MSU's homepage. Prizes will be announced February 11, 2012 at the public Neuroscience Fair where selected artwork will be displayed. Artists are encouraged to attend.

Brain Bee at MSU

The Brain Bee at MSU is a live Q & A competition that tests the neuroscience knowledge of high school students. Young men and women compete to determine who is the "best brain" on such topics as intelligence, memory, emotions, sensations, movement, stress, aging, sleep, addiction, Alzheimer's, and stroke. Participants can study this material by using "Brain Facts" (a pdf is available free from our website, along with lots of study aids). In addition, we are holding a Neuroscience Bootcamp on February 4th, which will go through a lot of the material the week before the competition. The competition will be held on February 11, 2012 in the Biomedical Physical Sciences Building on MSU's Campus.

Neuroscience Fair

Come learn about neuroscience by participating in lots of neuroscience demonstrations, hear interesting science stories from our keynote speaker and view the art from our very first Neuroscience Art Contest. There will be activities appropriate for ages five-adult including making your own neuron, hearing and seeing real neurons fire, experiencing how your senses can be tricked and getting to touch a real human brain. You can also drop in to watch high school students compete to be the 2012 champion of the Brain Bee at Michigan State University! Doorprizes will be awarded. All events are free and open to the public, beginning at 12:30pm February 11, 2012 in the Biomedical Physical Sciences Building on MSU's Campus.

CHECK OUT THE WEBSITE!!

Explore and Discover the Human Brain!
www.brainbeemsu.com
Don't forget to follow us on facebook!
https://www.facebook.com/brainbeemsu

Final Call - Student Experiments Opp. on Intl Space Station Spring 2012

By Dr. Jeff Goldstein, Center Director and SSEP Program Creator
National Center for Earth and Space Science Education (NCESSE)

Last November, the National Center for Earth and Space Science Education (NCESSE, http://ncesse.org) sent out a national announcement of opportunity for a STEM education program that engages typically hundreds of students (grades 5-12) across a community in real science aboard the International Space Station (ISS). It is called the Student Spaceflight Experiments Program (SSEP) and it is truly changing the way students and teachers view science, science education, and the process of learning. This is an authentic, immersive experience that embraces ownership in learning for the learner, and garners very significant media attention. We have flown student payloads on the final two Space Shuttle flights and now on ISS.

For the current opportunity – SSEP Mission 2 to ISS - each participating community is provided all launch services to fly a real microgravity research mini-laboratory on Space Station from September 28 to November 12, 2012 via Soyuz 32, and a kit for assembly of their mini-lab. An 8-week experiment design competition, which includes your student teams writing and submitting real experiment proposals is held Spring 2012 (March-April). These teams are all designing real microgravity experiments and are vying for your community's reserved mini-lab slot on Space Station. The process precisely mirrors how professional researchers design a research program and submit proposals to acquire the limited and necessary resources. This is student immersion IN REAL SCIENCE, with the opportunity to fly a real experiment on the INTERNATIONAL SPACE STATION – AMERICA'S NEWEST NATIONAL LABORATORY - as the carrot. The flight opportunity I am writing you about is called "Mission 2 to the International Space Station."

Yesterday, January 5, 2012, we announced the selection of 15 flight experiments representing the 12 communities participating in Mission 1 to ISS. From across the 12 communities, 779 student team proposals were received.

You might want to read the Press Release:

http://ssep.ncesse.org/2012/01/grade-5-14-student-researcher-microgravity-experiments-selected-to-fly-in-march-2012-to-the-international-space-station/

The National Center for Earth and Space Science Education, a 501c3 non-profit, oversees the SSEP. Participation in the program has a real cost, which is a hurdle in today's economic climate. Our Center is therefore committed to assist in finding funding for interested communities, and we have found funding for 28 of the 39 communities that have participated thus far. But fundraising requires time, and for a community to have a Mission 2 to ISS program start on March 5, 2012, we need to fundraise right now. This is therefore a final call for Mission 2 to ISS.

URGENT: If your community is interested in SSEP Mission 2, then quickly have someone with authority over a team of teachers capable of carrying out this program in your community give me a call directly on my cell phone: 301-395-0770.

NOTE: SSEP IS NOT DESIGNED FOR PARTICIPATION BY A GROUP AS SMALL AS AN INDIVIDUAL CLASS OR DOUBLE CLASS OF 30-60 STUDENTS. The expectation is a plan for at least 200-300 grade 5-12 students fully engaged in experiment design in a participating community.

The SSEP program home page: http://ssep.ncesse.org

PS: (if you've not seen it) For the new year, as a shot in the arm for your teachers in tough times, a 3-min Symphony of Science music video produced for teachers. http://www.youtube.com/watch?v=haUj3qUncOs

KEY SSEP PARTNERS:

National Center for Earth and Space Science Education
NanoRacks, LLC
Smithsonian's National Air and Space Museum
Carnegie Institution of Washington / Carnegie Academy for Science Education

This on-orbit, real research opportunity for students is enabled through NanoRacks LLC, which is working in partnership with NASA under a Space Act Agreement as part of the utilization of the International Space Station as a National Laboratory.

Do you know an outstanding biology teacher in Michigan?

Then nominate him or her for the National Association of Biology Teachers "Outstanding Biology Teacher Award". Contact the Michigan OBTA director, Rebecca Brewer, at obta.mi@gmail.com to get a nomination form. Nominations are being accepted until March 1st.

Executive Director - *continued from front page*

Opportunities for you to network with your peers and gain new contacts will abound! Explore the Impression 5 Science Center with colleagues for conversation and intriguing science exhibits, and enjoy an ice cream social. Join us in the exhibit hall to see the latest in science resources and technologies and play the QR Code Game to win fabulous prizes including the Grand Prize: a CX Teacher Bundle (calc and software for the new Nspire Lab Cradle) courtesy of Texas Instruments!

The Michigan Science Teachers Association State Conference is one of the largest state science conferences in the United States. Come discover why it continues to be regarded for excellence. See you in March. Go on line to register today: http://www.msta-mich.org/conference/

We look forward to seeing you!!

Elementary Science Extravaganza

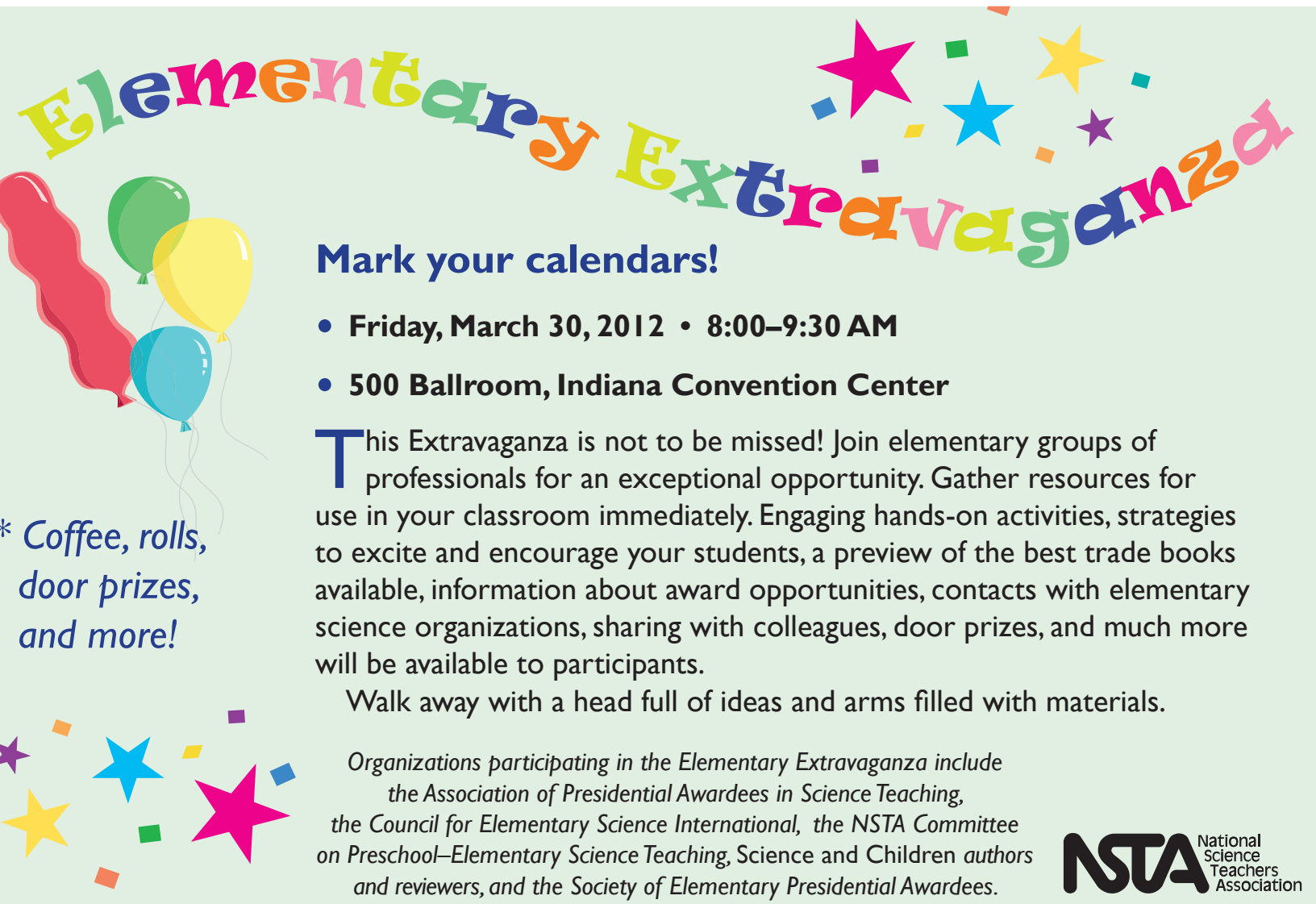
Friday, March 30, 2012
8:00-9:30 AM
500 Ballroom, Indiana Convention Center

By Linda Froschauer, Editor, Science and Children

Please join us for the first NSTA Elementary Extravaganza! This inaugural event brings together several national and international organizations to provide elementary teachers with a variety of teaching strategies and resources. The Extravaganza is a kick-off to a series of elementary sessions selected and presented by the members of the Council for Elementary Science International. These sessions, along with the annual NSTA/CESI Elementary Luncheon, will provide conference goers with a full day of elementary opportunities selected specifically to fit their needs.

Participants will engage in hands-on activities; learn about professional development opportunities; preview the CBC/NSTA elementary science trade books; interact with the leaders of NSTA and other national and international organizations; gather information about award and grant programs for elementary teachers; share insights with colleagues; grab a cup of coffee; and learn of opportunities to become more involved in professional organizations. In essence, they will walk away with a head full of ideas and arms filled with materials. So, encourage your friends and colleagues to attend as well.

Participating organizations include: • The Association of Presidential Awardees in Science Teaching • The Council for Elementary Science International • The NSTA Committee on Preschool-Elementary Science Teaching • Science and Children Authors and Reviewers • The Society of Elementary Presidential Awardees



Mark your calendars!

- **Friday, March 30, 2012 • 8:00–9:30 AM**
- **500 Ballroom, Indiana Convention Center**

This Extravaganza is not to be missed! Join elementary groups of professionals for an exceptional opportunity. Gather resources for use in your classroom immediately. Engaging hands-on activities, strategies to excite and encourage your students, a preview of the best trade books available, information about award opportunities, contacts with elementary science organizations, sharing with colleagues, door prizes, and much more will be available to participants.

Walk away with a head full of ideas and arms filled with materials.

** Coffee, rolls, door prizes, and more!*

Organizations participating in the Elementary Extravaganza include the Association of Presidential Awardees in Science Teaching, the Council for Elementary Science International, the NSTA Committee on Preschool–Elementary Science Teaching, Science and Children *authors and reviewers, and the Society of Elementary Presidential Awardees.*

NSTA National Science Teachers Association

The Junior Science and Humanities Symposium (JSHS): Nurturing the Next Generation of Scientists

By Sandra Yarema, Wayne State University/Lawrence Tech, Director at Large

The 48th Annual Southeast Michigan Junior Science and Humanities Symposium will take place on Thursday, March 1 and Friday, March 2, 2012, at the McGregor Conference Center on the main campus of Wayne State University. The Junior Science and Humanities Symposium (JSHS) Program is sponsored by the Academy of Applied Sciences and the U.S. Army, Navy, and Air Force. Since its inception in 1958, the primary aims of JSHS are to promote research and experimentation at the secondary school level and to recognize students for original research achievements.

Every year, high school students throughout southeastern Michigan attend a **no-cost**, two-day symposium, coordinated by the College of Education at Wayne State University, where they present their research and participate in a number of other activities. JSHS participants have an opportunity to receive substantial scholarship awards at the regional and national levels. Over 1,000 students and their teachers participate annually, in 48 regional symposia held at university campuses throughout the United States, Puerto Rico, and Department of Defense schools in Europe and the Pacific. Five finalists from each regional JSHS are invited to attend the National JSHS free of charge; first and second finalists from each region present their research at the National JSHS (May 2-6, 2012 in Bethesda, MD). The first place finalists in each category at the National JSHS (over 400 from 60 nations) are invited to attend the London International Youth Science Forum (July 27- Aug 10, 2012) all expenses paid. Significant awards are available to regional and national JSHS presenters. Scholarship recipients must be USA citizens or permanent USA residents.

Three scholarships are awarded to the finalists of the regional JSHS:

- $2,000 to 1st Place
- $1,500 to 2nd Place
- $1,000 to 3rd Place

These scholarship awards are payable upon matriculation at the university of the student's choice. The teacher of the first place finalist from each region also receives a $500 honorarium. Finalists in each of the categories at the National JSHS are additionally awarded:

- $12,000.00 to 1st Place
- $8,000, 00 to 2nd Place
- $4,000.00 to 3rd Place

Please **visit http://coe.wayne.edu/ted/science/jshs/index.php to attend or to find out more about the 48th Southeast Michigan JSHS: Nurturing the Next Generation of Scientists. The deadline for Application forms for students to Present Research is January 15, 2012.**

Also visit the national website http://www.jshs.org/ for more information about **JSHS- a prestigious scholarship program to engage Grades 9- 12 in scientific inquiry.**

NASA Summer Program for Teachers

By Stephen Hall, Hamady High School, Flint

Two Genesee County teachers spent two weeks working at NASA's Kennedy Space Center with engineers and scientists, hoping to improve the quality of education at a Flint area school. Mr. Stephen Hall and Mr. Tim Lewis, from Hamady High School, are already seeing great benefits from this program. Mr. Hall believes that the free NASA resources have really sparked student interest, and made him a better teacher. Also, the unforgettable tours of NASA facilities have given him numerous stories to share with students of why science and math are important.

The teachers were selected from over 200 applicants nationwide, and the application process was very intense, including a lengthy application and interview. The program included once in a lifetime tour opportunities, including watching the last space shuttle land, seeing all 4 space shuttles up close, and seeing numerous historical rockets and launch sites from the early American space program.

Hopefully more teachers from Michigan may participate in the future. This program brings NASA resources and business partnerships into local schools and provides a once in a lifetime opportunity for educators.

As part of the program, teachers from all over the country created math and science lesson plans, including how to use kites and cell phones to improve science and math instruction. This lesson plan and many others can be found at https://simaero.rti.org/pages/MODSIM_Lessons.aspx

If you are a science or math teacher and are interested in this experience, please visit simaero.rti.org for more information. Or, please contact Stephen Hall directly at shall@hamadyhawks.net. There is a similar program for students called NASA Inspire.

One more note: As a follow-up to the NASA program, Mr. Hall created a free android phone app to help science and math teachers (and their students). The app contains simulations (sims) that make learning math and science fun. It is the result of many, many hours I have spent searching the Internet to find the best resources for my classroom. Feel free to give it a try~

Teachers can download the app by searching for appinventor*aeroplans at market android.com or by using the direct link below:

https://market.android.com/details?id=appinventor.ai_shall7162.Aeroplans&feature=search_result#?t=W251bGwsMSwyLDEsImFwcGludmVudG9yLmFpX3NoYWxsNzE2Mi5BZXJvcGxhbnMiXQ..

Hopefully this will benefit some people.

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-2011 YPS Participant

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IRON CHEF CHALLENGE ACTIVITY FOR Grade 7 Performance Assessment – Chemical & Physical Changes

By Karen Kelly, John D. Pierce Middle School, Waterford MSTA Region 6 Director

Looking for that fun, yet meaningful project for 7th grade students to demonstrate their mastery of P.CM.07.21 and P.CM.07.22? The Iron Chef Challenge is your ticket!

This project is done AT HOME. None of the food or cooking is brought to school. Students are responsible for taking pictures of the ingredients BEFORE, the menu item DURING, and the product AFTER; and identifying the EVIDENCE of the changes that took place.

They are working in groups of THREE, with each student being responsible for ONE item of the menu. Menus include some sort of salad, some sort of meat to be cooked, and a dessert. Some groups chose to add a beverage, like a smoothie or some kind of a punch. The students do NOT have to get together to work on this, but can if they wish to. They can work independently at their homes and then bring their pictures together to create their presentation.

Goal: To identify evidence of physical and chemical change, and compare/contrast physical and chemical properties of the original ingredients and final menu items.
Role: You are a member of a Master Chef team of three that has been asked to design and prepare a meal. Menu must be approved by your teacher.

Audience: A panel of food judges/critics (your parents!).

Criteria for Success: Must include before, during and after photos that provide evidence of physical and chemical changes, in some kind of visual presentation (poster, Power Point, etc).

Responses:

"*This is the best project of the year!*" – student

"*We did it together and made it a dinner party so our parents could meet.*" - student

"*My son's steaks turned out better than mine do!*" – student's father

"*Looks like fun. Hope the product is actually edible!!*" – student's mother

Sample Performance Assessment Task Template - Page 11

Performance Assessment Check Bric - Page 12

Individual Iron Chef Challenge Report - Page 13

Sample Performance Assessment Task Template

DUE FRIDAY, JANUARY 6, 2012

Unit: Matter, Gr 7

GLCEs: P.CM.07.21; P.CM.07.22

DOK: 3

Description of Task: Prepare a meal for the Iron Chef Challenge.

Goal	Your task is to identify evidence of physical and chemical change, and compare/contrast physical and chemical properties of the original and final menu items.
Role	Master Chef team that has been asked to design a menu and prepare a BBQ/picnic meal. Your menu must be approved by your teacher. You will work in teams of THREE.
Audience	A panel of food judges/critics.
Situation/Context	The challenge involves identifying chemical and physical changes.
Product or Performance	You will describe the physical and chemical changes that occur as you prepare your meal – properties of ingredients before and after.
Standard or Criteria for Success	Visual Presentation: photo, video, poster, PowerPoint, etc. Must include: before, during, after, chemical and physical properties of ingredients, type(s) of change ***with evidence***

Name: _____ Teacher/Hour: _____ Project Points & Grade Earned: _____

Performance Assessment CheckBric for:

_____Iron Chef Challenge_____

Content Ð Chemical/Physical Properties (30%)	**1 2 3 4**	**Comments**
___ Proper use of vocabulary ___ Accurate description and explanation of the chemical and physical properties of the ingredients ___ Accurately compares and contrasts the chemical and physical properties of the original and final products		
Content Ð Chemical/Physical Changes (30%)	**1 2 3 4**	**Comments**
___ Proper use of vocabulary ___ Accurate description and explanation of the ***evidence*** of chemical and/or physical changes of the ingredients during preparation ___ Accurately compares and contrasts the chemical and physical changes that occur throughout the menu preparation		
Presentation (20%)	**1 2 3 4**	**Comments**
___ Includes before, after, and indication of type of change, ***with evidence cited***, for each menu item ___ Visual presentation (photo, video, poster, PowerPoint, etc.) accurately models all steps throughout preparation of menu ___ Is visually appealing and professional		
Individual Effort (20%)	**1 2 3 4**	**Comments**
___ Fully and completely filled out Individual Iron Chef Challenge REPORT (see back) ___ Worked cooperatively with your group		

4 - Exemplary	Work at this level is both exceptional and memorable. It exceeds the standard. It shows a distinctive and sophisticated application of knowledge and skills.
3 - Proficient	Work at this level meets the standard. It is acceptable work that demonstrates application of essential knowledge and skills. Minor errors or omissions do not detract from the overall quality.
2 - Developing	Work at this level does not meet the standard. It shows basic, but inconsistent application of knowledge and skills. Minor errors or omissions detract from the overall quality. Your work needs further development.
1 - Emerging	Work at this level shows a partial application of knowledge and skills. It is superficial (lacks depth), fragmented or incomplete and needs considerable development. Your work contains errors or omissions.

*P.CM.07.21; P.CM.07.22

Name: _____ Hour: _____ Due Date: FRIDAY, JAN 6, 2012

Individual Iron Chef Challenge REPORT

Group Menu:

1. _____
2. _____
3. _____
4. _____

**spelling, grammar, and punctuation counts!!

I was responsible for:

_____

Ingredient list for my dish: _____

_____

Step-by-step preparation of my dish: _____

_____

Summary of the chemical and physical properties of the ingredients, before and after preparation (be detailed!) _____

_____

_____

Summary of the chemical and physical changes that occurred as I prepared my dish (be detailed!) _____

_____

_____

Texting & Student Retention at the Virtual Learning Academy of St. Clair County

By Jennifer L. Richmond, Science Teacher Mentor and Assistant Principal, Virtual Learning Academy of St. Clair County

Communication is Vital to Retaining At-Risk Students

The Virtual Learning Academy of St. Clair County is a public charter school designed to help students who have either un-enrolled from or have been expelled from their local high school. The Virtual Learning Academy uses online courseware to help students reach their personal goals of earning a Michigan high school diploma by completing the MMC graduation requirements.

In order to keep students engaged and motivated in online curriculum at the Virtual Learning Academy, teacher mentors communicate with students and their parents. Having an individual, mentoring relationship with each student is a key component to the program's success and near constant communication is a vital piece of student retention. This article describes some strategies employed by staff at the Virtual Learning Academy.

The Teacher Mentor Role

Teacher Mentors at the Virtual Learning Academy take on the role of coaches or facilitators rather than a more traditional teacher role. Using curriculum from an online course content provider, teachers have the benefit of not being bogged down in lesson planning or grading and are able to focus more on building relationships with students.

This is a key piece of the Virtual Learning Academy's success as an online school: the close student-teacher relationships that are built. Teacher mentors are able to model successful note-taking strategies, engage students via virtual field trips or hands-on activities, and are also able to use classroom time to work on skill-building activities. Students feel supported by their teacher mentors and are therefore more likely to ask for help when needed. The main role of a teacher-mentor at the Virtual Learning Academy is to build relationships with students by contacting them and helping them progress through their online courses.

Texting and its Benefits

Texting has become the primary (and most effective) method teacher mentors use to contact students. Teacher mentors each have cell phones with texting plans that are issued to them by the Virtual Learning Academy. Students are able to text or call teachers throughout the day from any place they are working if they need assistance from a teacher.

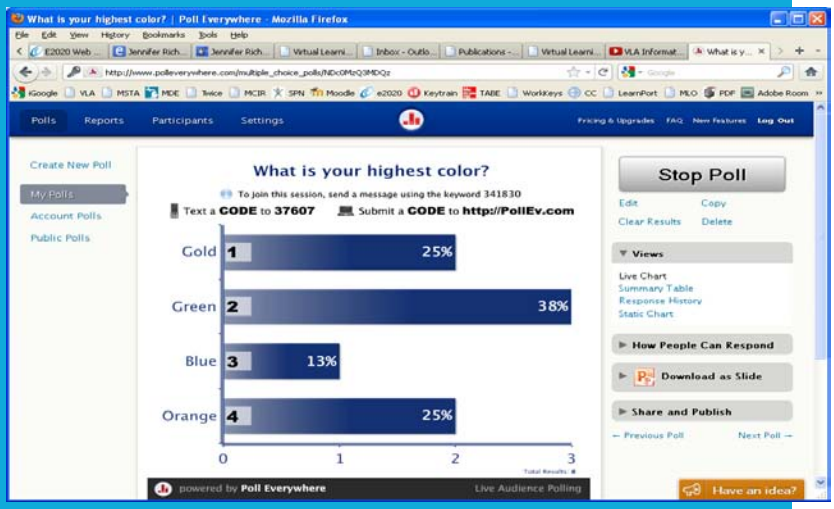
Texting has become so prevalent in our program that we often find students prefer to text a teacher for help even when that student is in the same classroom as the teacher! How many times have we heard that students don't want to ask questions because they don't want others to think they are "dumb"? This is a prime example of that. Students can text a teacher for help and it is a discreet way for them to receive the assistance they may need.

Example of a wiffiti collaboration

Curriculum Ideas

We find that texting is a great way to communicate with students. It is quick, easy to do, and also logs conversations with students so that we don't need to record what has transpired. With the high number of students owning cell phones equipped with texting plans, we are able to reach the vast majority of our students using this communication method.

Another use for cell phones at the Virtual Learning Academy is for discussion purposes and collaboration. Teacher mentors use web programs such as wiffiti, Google Docs, Poll Everywhere, and other sites that allow students to collaborate via texting.



Example of a Poll Everywhere submission

While teacher mentors still employ other methods of contacting students and parents, texting is definitely the most frequent form of contact between students and their teacher mentors. If teachers find students are not responding appropriately to texts, contacts via phone, email, or letters home to parents then take place. We find that involving family members who can help their student stay on-track is an important key to student success.

Conclusion

Near constant, encouraging communication with at-risk students seems to be the key piece in the puzzle of academic success at the Virtual Learning Academy. To best reach our students, we have tried to meet them where they are: via text. Teenagers seem to be tied to their phones, texting non-stop. Why not engage and motivate them academically by using a system they already know and enjoy? If you have not experimented with texting in your own classroom, I challenge you to try out one of the websites mentioned above. There are many free tools available that turn cell phones into powerful collaboration tools in the classroom. With the large number of students carrying these technologies around in their pockets, why not put them to work in your classroom?

Resources:

Wiffiti: http://wiffiti.com/
Google Docs: http://www.google.com/google-d-s/documents/
Poll Everywhere: http://www.polleverywhere.com/
Virtual Learning Academy: http://sccresa.org/countyeducation/academies/virtuallearningacademy/

About the Author:

Jennifer L. Richmond (Richmond.Jennifer@sccacademy.org) is a Science Teacher Mentor and Assistant Principal at the Virtual Learning Academy in Port Huron, Michigan and the Region 9 Director of the Michigan Science Teachers Association

Neutrinos and Poetry

By Lynn Thomas, Escanaba High School, MSTA Region 14 Director

The topic of nuclear chemistry is typically covered in the high school chemistry curriculum and students often consider it an isolated science objective. The integration of poetry offers a cross curricular opportunity to engage students. Learners benefit from the experience of reading different kinds of materials for varied purposes. Neutrinos are fundamental particles that travel close to the speed of light, have no charge, have a miniscule mass, and are able to pass right through ordinary matter. The neutrino has been in the news lately due to controversial results at CERN that imply neutrinos may move faster than the speed of light. Neutrinos interact via the Weak Force, which is the force responsible for radioactive decay of nuclei. The Weak Force has the unique ability to change nuclear particles into other nuclear particles. For example, it can transform a neutron into a proton or vice versa, which changes one atom into another: an alchemist's dream come true! Neutrinos are generated during radioactive beta decay. Students can examine the properties of the neutrino by reading the delightful poem Cosmic Gall by John Updike:

Through examination of the poem, students should be able to list the properties of the neutrino that are described. This can lead to a discussion of new discoveries in science. For example, the poem was published in 1960, shortly after the discovery of the neutrino. Since that time, it has been determined that the neutrino does have a mass, however minuscule it may be. Another interesting discussion arises from the question: why does John Updike "call it crass?"

The integration of poetry into the science classroom gives students the opportunity to critically examine ideas in a different format. As new ideas are gleaned from a variety of reading experiences, concepts become integrated with previously learned information.

High School Content Expectations

C1.2C "Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information."
C2.r5b "Illustrate how elements can change in nuclear reactions using balanced equations."
C2.r5d "Describe how and where all the elements on earth were formed."

Cosmic Gall - *Telephone Poles and Other Poems, John Updike, Knopf, 1960*

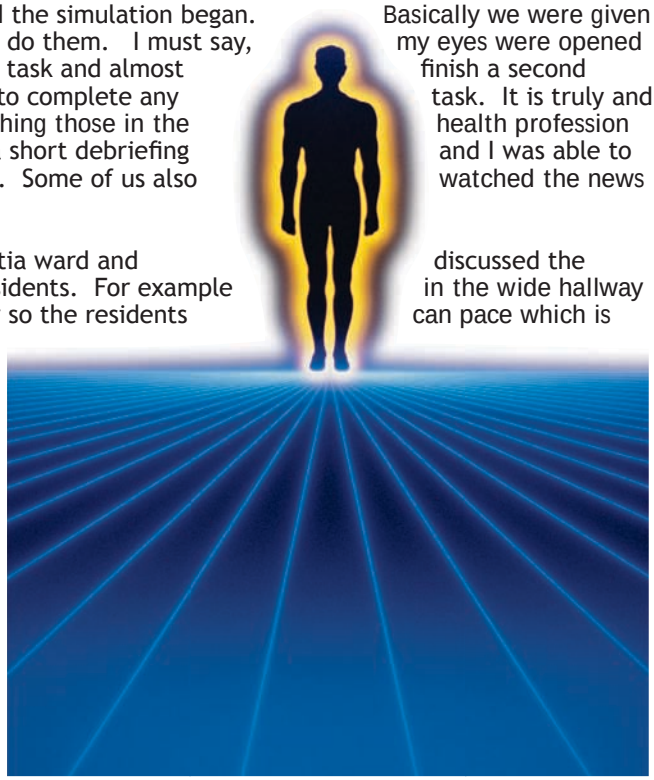
NEUTRINOS, they are very small.
They have no charge and have no mass
And do not interact at all.
The earth is just a silly ball
To them, through which they simply pass,
Like dustmaids down a drafty hall
Or photons through a sheet of glass.
They snub the most exquisite gas,
Ignore the most substantial wall,
Cold shoulder steel and sounding brass,
Insult the stallion in his stall,
And scorning barriers of class,
Infiltrate you and me! Like tall
and painless guillotines, they fall
Down through our heads into the grass.
At night, they enter at Nepal
and pierce the lover and his lass
From underneath the bed-you call
It wonderful; I call it crass.

Student Dementia Simulation Activity for Anatomy Students

By Lu Anne Clark, Lansing Community College, Michigan Community College Biology (MCCB) Representative

It all began with a Christmas tree in the lobby, actually before that it began with a news show episode on TV. What am I talking about? A Dementia Simulation Field trip with my Human Anatomy students this past semester! The director of Grace Haven Assisted Living in St Johns, where I teach, was finishing off the decorations on a tree for a Festival of Trees exhibit in the lobby Lansing Community College St Johns Center shares with the Clinton County RESA. She had been a former anatomy student of mine. And she was excited to see me so she could describe a project they were doing and invite my class to participate. Grace Haven is a part of a group of private assisted living facilities. After watching a news program episode on a dementia simulation they signed up to be part of the study. Now, all employees in all of their facilities are required to complete the training. The next phase, which we were able to be part of, was training care givers, family members and college students.

So, I asked the class and discovered they were excited about doing this. I then found a "spare bit" of time, no easy feat towards the end of the semester as you all know and we set it up with the facility. I had no idea what we were getting into either. On the appointed day I took 15 willing students (or perhaps they just needed the extra credit?) and we went to Grace Haven. After a preliminary talk each of us were taken one at a time to be "outfitted" for the simulation. Eyesight, hearing, and our hands were altered for this. Two observers were in the room, which was a vacant apartment in the facility. Lights were dim and the simulation began. Basically we were given a verbal list of 5 tasks to perform and we had 10 minutes to do them. I must say, my eyes were opened by this experience. I was only able to completely finish one task and almost finish a second one. Others were able to do more but some were not able to complete any task. It is truly and experience everyone in the health profession or who is teaching those in the health profession should experience. Also as part of our experience we had a short debriefing and I was able to discuss the feelings and reactions of my students with them. Some of us also watched the news video. See links below.



We were also given a tour of the facilities late stage dementia ward and discussed the precautions taken and the various things they do for the residents. For example in the wide hallway between the rooms they have all the furniture in the center so the residents can pace which is something they often do. Some of them have no sense of time and so may be up all night and sleep all day. We also witnessed some of the interactions between staff and residents because it was lunch time. It was quite an eye opener for me. For example, one woman whom they all call "Grandma" was in a catatonic state at the table. Bobbi talked to her as she was cutting up her food but got no response. However, once Bobbi gave her the physical stimulus of the fork in her hand Grandma started eating and had emptied her plate by the time we passed again. They also had a "texture" rack in the hall way with tweed jackets, fluffy boas, etc because the residents are very tactile. There were also several large pocket books on the racks because Bobbi explained they often "shopped" in each other's rooms (which are unlocked for obvious reasons.)" At the end of the day the staff can just find the bags, put the items back and hang them up for the next day. They also try to have familiar items in the rooms. We saw old wedding pictures and some statues in one and some of the resident's children's year book pictures hanging on the wall in another. Something else that surprised me though was the fact that there were no tubs or showers in the bathrooms. Bobbi explained that showers are actually irritating to the residents and that of course baths are dangerous. So they had one common large gentle shower for the residents to use when needed.

After our experience I asked the class if I should make this a regular part of our Human Anatomy course. And the answer was a resounding YES. So I have moved a few things and am excited to do this again this spring semester. Also, I have recommended it to all of my fellow health science professors at LCC. Both the Assisted Living consortium and I want to make this a regular part of the health profession education here at LCC.

http://www.youtube.com/watch?v=3hROU6f5TUQ
http://abcnews.go.com/Nightline/video/virtual-dementia-tour-families-understanding-alzheimers-disease-11226182
http://www.ageinplacetech.com/content/virtual-dementia-tour-add-another-media-friendly-age-simulator-age-suit

Curriculum Ideas

BRING A FIELD TRIP TO YOUR CLASSROOM!!

Great Lakes Energy Service, Inc. (GLES), a non-profit renewable energy education organization, is gearing up for the spring and fall school 2012 traveling season, offering mobile classroom visits and renewable energy workshops and summer energy camps to thousands of students. Appointments for the classroom visit to your school are still available for the 2011-2012 school year, though dates are quickly filling up (www.greatlakesenergyservice.org).

The GLES renewable energy mobile classroom features hands-on learning stations and renewable energy education which is customized and delivered to a school's campus by GLES's professional education staff. "We realize that field trips are often not an option for schools struggling with limited budgets, transportation issues, or are just located too far from appropriate facilities, so we are proud to offer authentic learning opportunities in renewable energy by a certified teacher to Michigan schools on their grounds," says Chris Dunkel, Director of GLES.

Wind generated electricity – Summer Camp

School teachers, administrators, or other community organizations that are youth development based may simply visit the GLES website to request a free mobile classroom visit. Visits are best targeted to 3rd grade and up, as the education provided meets several State of Michigan and national science curriculum standards, but all grades can be accommodated with modified education. Schools may choose to receive a day full of 20-30 minute classroom education visits for several groups of students (optimally 25 or less) or may request a visit that provides a particular energy workshop lesson which targets a particular group of students.

Solar powered vehicles – Summer Camp

An energy workshop or summer energy camp option, separate from a mobile classroom visit, provides teachers or other organizations (e.g. Parks and Recreation, YMCA, Girl Scouts, Boy Scouts, etc.) with an opportunity to request a particular concept of study and experimentation. For example, students can learn how electricity is generated by solar energy through photovoltaic cells and then work in groups to create a solar powered flashlight or model car (materials provided). Another option is to learn about wind generated electricity and then create miniature wind turbines with a focus on blade design for optimal electrical production. Teachers can choose from various learning experiences among renewable biomass, hydropower, wind energy, or solar energy disciplines. Energy Workshops or Summer Energy Camps can be offered singularly or in succession and can be held during the school day or during scheduled school district breaks. There is a fee associated with the energy workshop lessons

GLES Mobile Renewable Energy Classroom

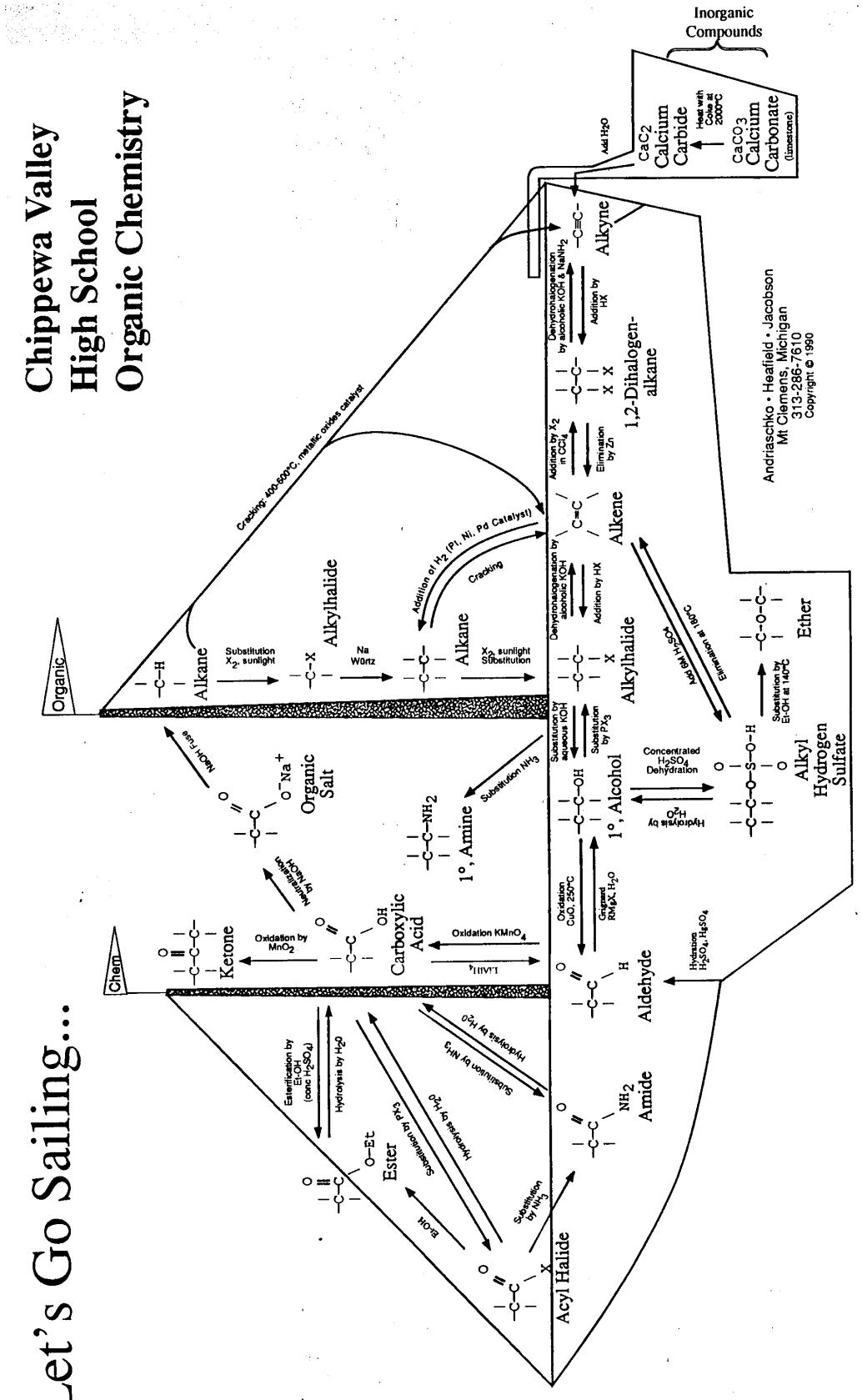
For more information, to inquire about energy workshop fees, to contact GLES, or to schedule your visit, please visit the GLES website http://www.greatlakesenergyservice.org.

ABOUT GLES

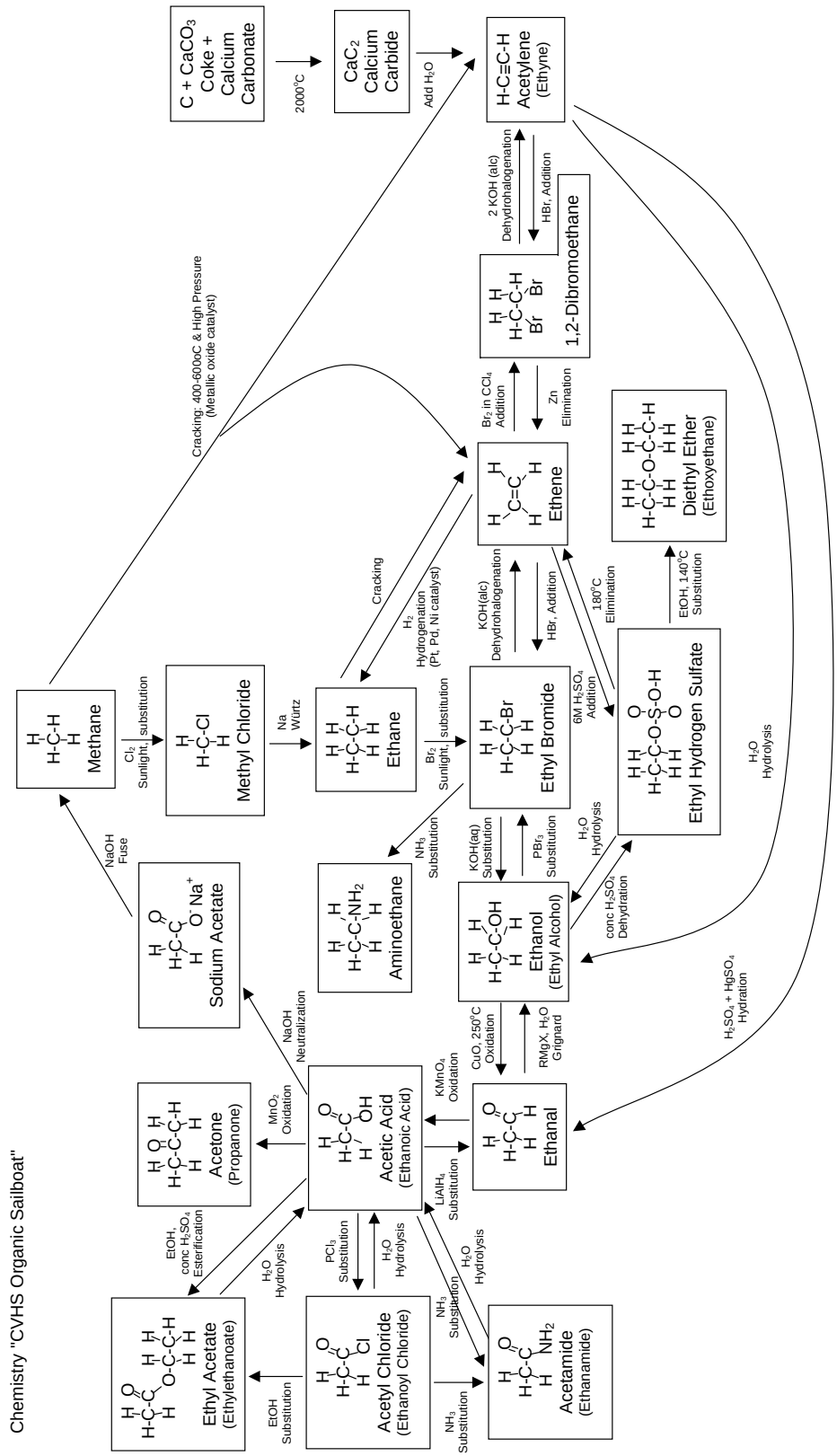
Great Lakes Energy Service (GLES), founded in 2008, is funded by the Michigan Public Service Commission and serves schools and other learning institutions, youth focused organizations, and community outreach events by providing education about renewable energy and energy efficiency. GLES is a DeWitt based non-profit renewable energy education organization that delivers a mobile classroom and accompanying education to schools throughout the state of Michigan. The mobile classroom, powered by wind and solar energy, boasts hands-on learning stations in solar energy and wind energy and provides models that demonstrate hydropower and energy efficiency.

Organic Chemistry Graphic Organizer -

Thanks to Walt Andriaschko



Curriculum Ideas



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Michigan Joint Education Conference!

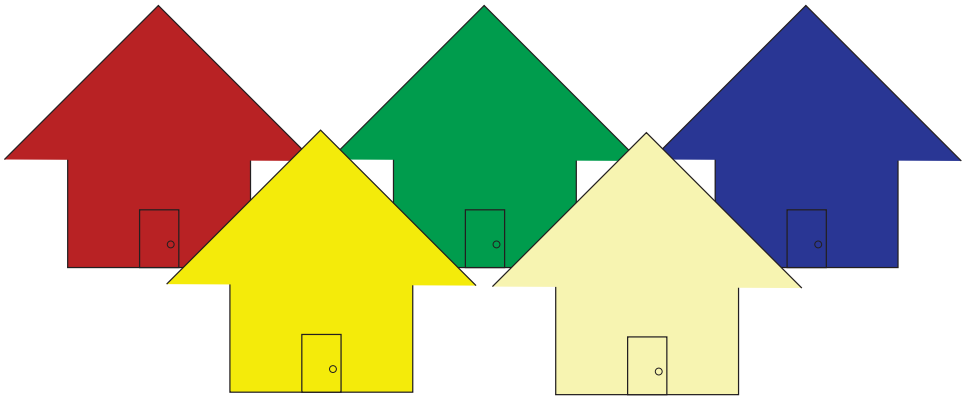
Join...

- 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 Intergrated Education Conference!

"WHO OWNS THE ZEBRA" and "WHO DRINKS THE WATER"

A Brain Teaser from Walt Andriaschko, Chippewa Valley High School – Many Thanks!!



There are five houses: each of a different color, inhabited by men of different nationalities, who graduated from different universities, who have different pets, and different drinks.

The ENGLISHMEN lives in the RED house.

The SPANIARD owns the DOG.

COFFEE is drunk in the GREEN house.

The UKRAINIAN drinks VODKA.

The GREEN house is immediately to the right of the IVORY house.

The U OF M grad lives with his SNAILS.

The MSU grad lives in the YELLOW house.

MILK is drunk in the middle house.

The NORWEGIAN lives in the first house on the left.

The UCLA grad lives in the house next to the man with the FOX.

The MSU grad lives in the house next to the house where the HORSE is kept.

The USC grad drinks ORANGE JUICE.

The WSU grad is JAPANESE.

The NORWEGIAN lives next to the BLUE house.

OK, now DEDUCE who owns the ZEBRA and who drinks the WATER. PLEASE, submit your PROOF with your answer.

Japanese -- zebra Norwegian -- water

Unlock the Puzzle and Put Your Brainpower to the Test at Imagination Station

Imagination Station, Toledo's science center, is excited to be welcoming our newest traveling exhibition *Mindbender Mansion*, opening January 28, 2012.

Mister E. and the Mindbender Society invite you to enter the wonderfully puzzling world of *Mindbender Mansion*, an eclectic place full of puzzles, brainteasers, and interactive challenges guaranteed to test the brainpower and problem solving skills of students of all ages. Your students will enjoy exercising their minds as they try to master each of the 40 individual brainteasers and the five group activities in this fun and unconventional new exhibit.

Visitors to *Mindbender Mansion* will be greeted by the wacky Mr. E., master brainteaser, puzzler extraordinaire and current curator of the Mindbender Society. He'll explain the mysteries of *Mindbender Mansion* and how to become a member of the eccentric Mindbender Society by gathering hidden clues and secret passwords. The clues can only be found by solving key puzzles found in select themed areas.

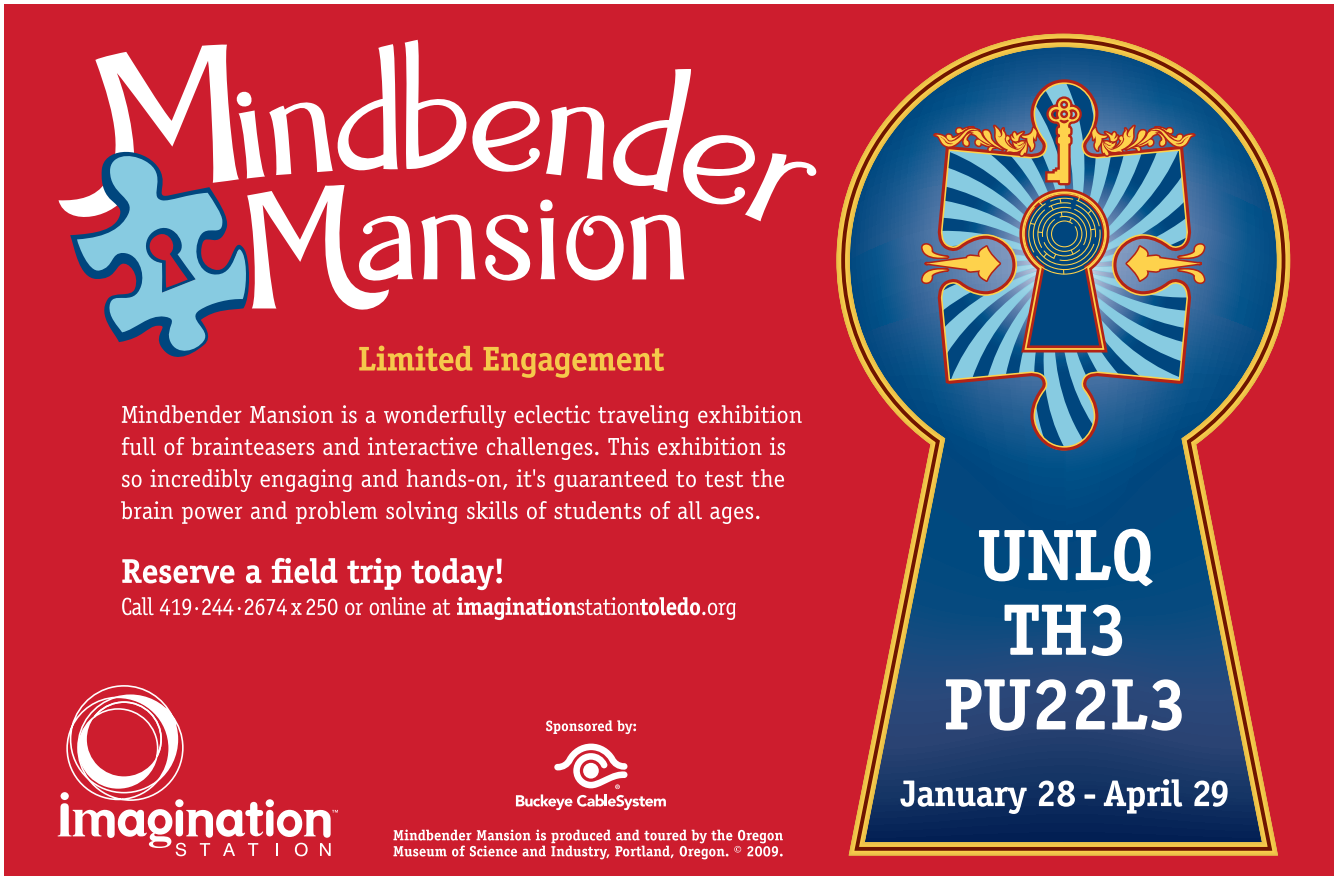
Throughout the exhibit visitors will find a combination of tabletop brainteasers they can solve on their own and larger group challenges that require assistance from their fellow mansion guests.

The group challenges include:

- Feeding Frenzy-Kitchen mayhem is guaranteed in a race to beat the clock by filling T.V. dinner trays (with five kinds of food) on a fast moving conveyer belt.
- Flying Machine-Solid teamwork is a must in order to maneuver a mechanical "flying machine" around a large game board hitting six targets in sequence before the time is up.
- Spelling Fever-Hopscotch meets Scrabble® in this race to spell correct words within a limited amount of time by hopping on letter squares that light up.
- Move and Match-Dinner time was never this much fun! Slide your dining room chairs on wheels into a correct pattern before the clock runs out.
- Amazing Maze-In this version of the classic steel ball labyrinth game visitors must work together to tilt a table in different directions, guiding a ball into six holes as quickly as possible.

Upon completing each of the select brainteasers and group challenges, visitors will have gathered the necessary clues and secret passwords to become a member of the Mindbender Society and add their portrait to the "Wall of Fame."

Mindbender Mansion was produced and is toured by the Oregon Museum of Science and Industry, Portland, Oregon Ó 2009. Imagination Station, formerly COSI Toledo, is located on the downtown Toledo riverfront. To book a field trip, please visit imaginationstationtoledo.org or call 419.244.2674 ext. 250.



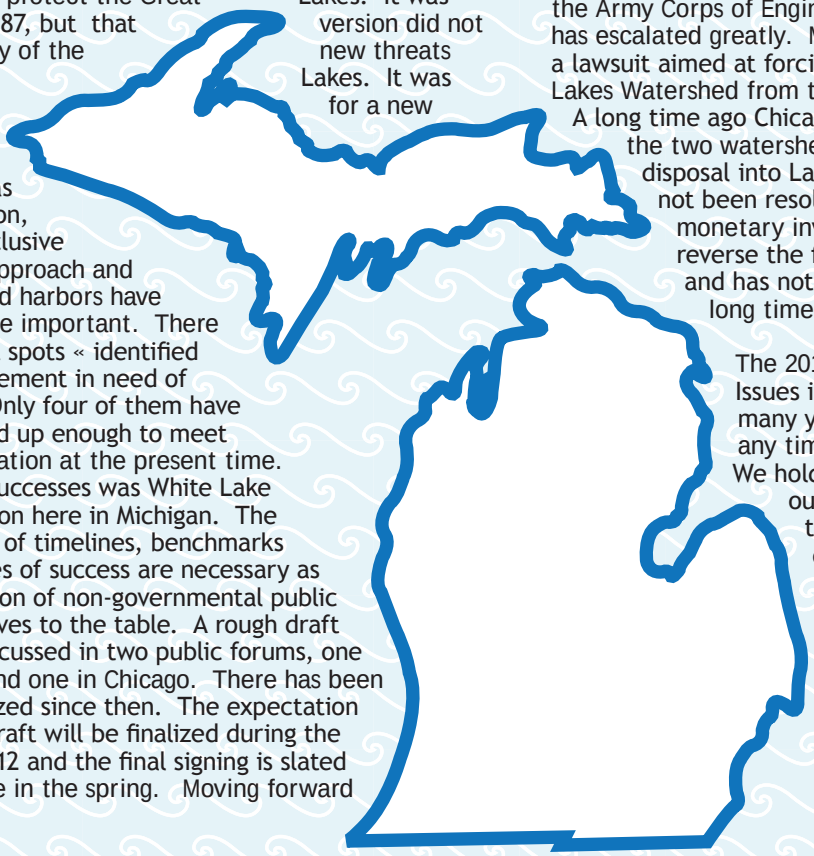
RESTORING THE GREAT LAKES...a Report on the Mega Conference held in Detroit

By Judy Morlan, Environmental Director, Grosse Pointe League of Women Voters, Metropolitan Detroit Science Teachers Association Liaison

"It is a 'sacred responsibility' to protect the waters. Oil and gold can be 'lived without', but water is a necessity!"— *1st Nation*

Several important water quality organizations elected to hold their annual conferences in Detroit at the same time - October 12th through 14th, 2011. It was an extraordinary experience, with Detroit the perfect site on the Detroit River. The International Joint Commission Conference (IJC), the Great Lakes Restoration Coalition (GLRC) Conference and partnering with them, the Great Waters Coalition (GWC) produced an unequaled worthwhile experience. A highlight was the address by Al Gore, which was standing room only by conscription. I have been an attendee for 6 out of the 7 consecutive GLRC conferences and this was the best one yet! Part of the reason was the addition of many more opportunities to learn and interact.

One of the most important topics discussed was the negotiation of a new Great Lakes Water Quality Agreement between the U.S. and Canada. The first GLWQA was formulated in 1972 consisting of shared goals and strategies to protect the Great Lakes. It was revised in 1987, but that version did not address many of the new threats assailing the Lakes. It was past time for a new Agreement. Issues such as toxic pollution, using the inclusive watershed approach and contaminated harbors have become more important. There were 43 ‹hot spots « identified in 1987 Agreement in need of attention. Only four of them have been cleaned up enough to meet initial restoration at the present time. One of the successes was White Lake near Muskegon here in Michigan. The introduction of timelines, benchmarks and measures of success are necessary as is the inclusion of non-governmental public representatives to the table. A rough draft has been discussed in two public forums, one in Toronto and one in Chicago. There has been little publicized since then. The expectation is that the draft will be finalized during the winter of 2012 and the final signing is slated to take place in the spring. Moving forward with a bi-national approach should continue to prove effective and valuable for the future of the Great Lakes.



A wonderful piece of news was released recently: the 2012 budget has been approved by Congress with the inclusion of $300 million for Great Lakes Clean-up. This is in part the result of Great Lakes Week in Washington held every February. Huge numbers of Great Lakes supporters from organizations too numerous to mention, descend on Washington for intensive lobbying activities. This is a gratifying and exciting time for the lobbyists and hopefully for the congressmen! The Great Lakes Delegation in Washington, which consists primarily of congressmen from the Great Lake›s states, need to work very hard to continue this much needed support from Congress.

The Great Lakes Compact (GLC) is an agreement endorsed by all eight of the Great Lakes states. It was difficult to reach agreement, but it was possible. The Compact delineates stressors to the lakes. They include land run-off, toxic chemicals, invasive species (ballast water), coastal development and and habitat loss, fishing pressures, water withdrawals and climate change. When all eight states can speak in one voice, their impact is much stronger. A current issue that is testing the power of the Compact is Waukeshaw, WI's, request to withdraw water from Lake Michigan. The city straddles the Great Lakes Basin and consists of a broad service area, not just the city itself. Part of the city lies directly on the shoreline. The guidelines are that only communities located within the Great Lakes Basin can use the water. This has not been resolved as yet.

The Chicago Waterway problem of the Asian Carp beginning to breech the hastily erected barriers built by the Army Corps of Engineers and entering Lake Michigan, has escalated greatly. Michigan is at the forefront with a lawsuit aimed at forcing Chicago to separate the Great Lakes Watershed from the Mississippi River Watershed. A long time ago Chicago dug the Sanitary Canal linking the two watersheds to facilitate Chicago's waste disposal into Lake Michigan. This volatile issue has not been resolved and would necessitate a huge monetary investment on the part of the city to reverse the flow. This problem is very complex and has not been resolved yet. It may take a long time to reach some sort of agreement.

The 2011 Mega Conference on Water Issues in Detroit will be remembered for many years and probably not duplicated any time soon.

We hold the future of the Great Lakes in our hands as stewards of our great treasury of fresh water. Many other entities including countries, state, municipalities and companies would like to share in the wealth. Water uses outside the G. L. Basin would deplete the economy, fishing industry, tourist trade, homeowners and beauty seekers.

Pure Michigan *Science*

MSTA Registration Form

MSTA 59th Annual Conference - March 8-10, 2012
Lansing Center - Lansing, Michigan

Note: Early Bird Deadline Ends February 14, 2011
Please use ONE FORM for each registrant (photocopy if necessary).
*All confirmations and communications will be done via e-mail. You MUST provide a valid e-mail where this information can be sent.

Registration Information:

Print first and last name here as you wish it to appear on your name badge.

First Name Last Name

Full Name of School/Institution/Business Name

Preferred Address: ❑ Home ❑ School ❑ Business

Street Address

City State Zip

County Daytime Phone

E-mail*

Primary Responsibility:

❑ School District/Central Administration ❑ Lower Elementary (K-2)
❑ Upper Elementary (3-5) ❑ Middle/Junior High School (6-8)
❑ High School (9-12)

Discipline:

❑ Biology ❑ Chemistry ❑ Earth Science ❑ Physics
❑ General Science ❑ Other: _____

Payment Information:

No Purchase Orders Accepted! Note: Billing address and name on card has to be *as it appears on the credit card billing statement or card will not be processed*.

❑ Credit Card: ❑ Visa ❑ MasterCard ❑ Check/Money Order:_____
Make checks payable to Michigan Science Teachers Association (MSTA)
(Tax ID# 38-2320469)

Card Number CVV Code* Exp. Date
*3 or 4 digit code on back of card

Name on Card

Billing Address

MSTA Member Specials!

Member Type:		
❑ Member ❑ Non-member ❑ Joint Member ❑ Institutional Member		
MSTA Membership Dues*:	**Fee**	**Total**
MSTA New Member	$45**	$____
MSTA *Emeritus (Retired)* Membership Renewal	$30**	$____
MSTA College Student Dues (*Full-time Undergrad or Graduate*)	$30**	$____
MSTA *Individual* Membership Renewal	$45**	$____
MSTA *Family* Membership Renewal	$50**	$____
*By paying MSTA Dues you are eligible to pay member rates for conference registration. **You may deduct $10.00 from the Membership fee if you choose NOT to receive Journals via the mail. You will receive an e-mail when Journals and Newsletter are available on-line.		
Joint Membership Dues†:	**Fee**	**Total**
Joint Membership	$60†	$____
Joint Institutional Membership	$175†	$____
†By paying Joint Membership dues you automatically become a member of MSTA, MCSS, and MCTM and are eligible to pay member rates for conference registration.		
Member Registration Specials: *All registrations MUST be sent in the same envelope.*	**Fee**	**Total**
2 Day "Team" Registration Class A&B Schools *(must send at least 5 registrations) - Save $10 per person!*	$80 x ___	$____
2 Day "Team" Registration Class C&D Schools *(must send at least 3 registrations) - Save $10 per person!*	$80 x ___	$____
2 Day Registration 1st Year Teacher OR 1st Time Conference Attendee	$80 x ___	$____
Registration Options:	**Fee**	**Total**
Members:		
Registration One Day: ❑ Friday or ❑ Saturday *(*$105 after February 14, 2011)*	$65*	$____
Registration Two Day *(*$115 after February 14, 2011)*	$90*	$____
Student and Emeritus Registration One Day:** ❑ Friday or ❑ Saturday *(*$45 after February 14, 2011)*	$20*	$____
Student and Emeritus Registration Two Day:** **Must be a FULL time undergrad student. Grad students need to pay regular registration rate. *(*$60 after February 14, 2011)*	$35*	$____
❑ **Non-teaching Spouse**	$35	$____
Non-Members:		
Registration One Day: ❑ Friday or ❑ Saturday *(*$160 after February 14, 2011)*	$125*	$____
Registration Two Day *(*$185 after February 14, 2011)*	$150*	$____
Student* and ❑ Emeritus Registration One Day: ❑ Friday or ❑ Saturday *(*$85 after February 14, 2011)*	$65*	$____
Student* and ❑ Emeritus Registration Two Day: *Must be a FULL time undergrad student. Grad students need to pay regular registration rate. *(*$100 after February 14, 2011)*	$80*	$____
Non-teaching Spouse	$35	$____
Other Registration Options:	**Fee**	**Total**
Friday Luncheon (11am-1pm)	$25	$____
SB-CEUs	$15	
Total	Grand Total	$____

For early registration rates, registration and payment MUST be received by February 14, 2011. Submit your registration by mail to: MSTA, 1390 Eisenhower Place, Ann Arbor, MI 48108 or FAX to (734) 677-3287 when paying by credit card. On-line registration is also available at the MSTA website - www.msta-mich.org. **Registrations after February 14th are subject to late registration rates and MUST be done on-site at the conference. Payment must accompany each registration.** No refunds will be made after February 10, 2011 (request must be made in writing). Substitutions may be made on or before February 10, 2011. *MSTA is a professional conference. Attendance for Friday and Saturday is designed for attendees 18 years and older. No children will be allowed to attend (EXCEPT for Friday evening Vendor Open House).*

MSTA Announces 2012 Award Winners

(LANSING) —The Michigan Science Teachers Association (MSTA) announced the winners of the Informal Science Educator of the Year, Teacher of Promise of the Year, and the Elementary, Middle School, High School, and College Teachers of the Year awards. Awardees will be honored at an Awards Ceremony during a special luncheon at the 2012 MSTA Conference. The Awards will be presented in the Capitol Ballrooms 1 and 2 at the Radisson Hotel in Lansing, Michigan at 11:00 AM on Friday, March 9, 2012. A special reception will be held immediately preceding the awards ceremony, at 10:00 AM, so that MSTA members can meet and visit with the winners. The association announced the following honorees.

Gary Abud, of Grosse Pointe North High School, will be recognized as the Teacher of Promise Award. This award is for inspiring students, demonstrating innovative teaching strategies, demonstrating the potential for science leadership and exhibiting a passion for science and teaching.

Rebecca Durling, of Discovery Elementary, will be awarded the Elementary Teacher of the Year for using and modeling best practices, inspiring her students, demonstrating innovative teaching strategies, being an excellent role model for students and other teachers, demonstrating leadership and exhibiting a passion for science and teaching.

Susan Tate, of Whitehall Middle School, will be recognized as the Middle School Teacher of the Year. Susan will be recognized for her using and modeling best practices, inspiring students, demonstrating innovative teaching strategies, being an excellent role model for students and other teachers, demonstrating leadership and exhibiting a passion for science and teaching.

Mary Lindow, of the Battle Creek Math and Science Center, will receive the High School Teacher of the Year. This award recognizes her using and modeling best practices, inspiring students, demonstrating innovative teaching strategies, being an excellent role model for students and other teachers, demonstrating leadership and exhibiting a passion for science and teaching.

Desomond Murray, of the Berrien County Math and Science Center, will be awarded the College Teacher of the Year for using and modeling best practices, inspiring his students, demonstrating innovative teaching strategies, being an excellent role model for students and other teachers, demonstrating leadership and exhibiting a passion for science and teaching.

Sarah Halson, of The Greening of Detroit, will be awarded the Informal Science Teacher of the Year. This award recognizes Sarah's unique and extraordinary accomplishments, active leadership, scholarly contributions, and direct and substantial contributions to the improvement of non-school based science education over a significant period of time.

Congratulations to the winners!!