

MSTA Newsletter



A publication of the Michigan Science Teachers Association • Volume 64.4 • FALL 2012

In this Issue

From the Desk of the Executive Director ____ 1

From the President's Desk _____ 1

Start the Year Outside _ 2

Mystery Planet _____ 3

Climate Change _____ 6

Professional Opportunities _____ 8

Diversifying Science Classroom Practice __ 12

The Fledgling _____ 13

How I Spent My Summer...Reflections on a Workshop-Filled Summer

As I pondered over the topic of this article, I thought about what I did this summer. With change being an ever-present entity in science education, I decided that I would meet some of this change head on. So I spent 3 weeks this summer at some pretty good workshops.

I am primarily a high school biology teacher and I was looking for some professional development over the summer to feed my inner student. With the redesign of the AP Biology curriculum for this coming school year, an AP Summer Institute was my main priority. Also, as I looked over the Next Generation Science Standards (NGSS) I saw that there is a great deal of talk about modeling and using models to teach science concepts so I focused in on some modeling workshops.

Workshop 1-AP Summer Institute

The summer institute at Ball State was everything I had expected. I had attended a workshop here about 5 years ago and felt comfortable going back. We learned about the format of the new labs; they are

continued on page 2

Thoughts From Your Executive Director

By Robby Cramer, MSTA Executive Director

Your voice counts! Before the end of 2012 you will have one more opportunity to impact the Next Generation Science Standards. The national public review survey will be announced soon. Watch for email messages from MSTA and from the Math and Science Center Network announcing how to access the survey to express your opinions about these important national science standards.

Michigan has been designated as a lead state in the development of these standards. MSTA has supported this initiative by providing names of people who would be good candidates for reviewing the standard work using a Michigan perspective. Furthermore, MSTA has supported the twenty reviewers with time and places to work together to analyze the standards.

The national leadership team has openly shared their appreciation for the depth of thought and the breath of reflection of Michigan reviewers' comments. On behalf of MSTA Board of Directors, I would like to thank the team of Michigan educators who have dedicated considerable time to offer comments, perspectives and clear examples to the Next Generation Science Standards Project.

Currently 46 of the 50 states in our nation have agreed to support and

implement the Next Generation Science Standards. This means that there will be a huge variety of resources available to all science teachers in the future to assist students in mastering these new science standards.

At an October national meeting of science leaders, Stephen Pruitt shared that "The Next Generation of Science Standards will be such a great opportunity for student success and that indeed, it will be their Sputnik of 1957." This 2012 project ensures that all students will have access to science education. Students will then have the ability to make the decision to pursue a science career. A teacher or another adult will not make that decision for the child. Indeed, it will be the student who makes the decision for a career pathway.

We encourage you to join us at the state conference in March 8 and 9, 2013 when we will join with the Michigan Department of Education to roll out the new science standards. We will have an entire strand dedicated to these new Science Standards for Michigan and the rest of the nation. We look forward to meeting you at the State Science Conference in March!

Start The Year Outside!

By Charles Bucienski MSTA Treasurer

The first days back to school each year are exciting for students and teachers alike. I teach 1st-3rd grade science at Fern Persons Elementary in the Olivet school district. I feel very fortunate to work in a district that has a trail system, outdoor classroom area, and a student accessible rock quarry all within walking distance of our classroom.

I make it a point to get all of my fifteen classes outside within the first two weeks of school. I like to do this right away in the school year to establish expectations with the students. I go over the rules by which our trip is governed before we hit the trail.

I start each new school year with life science, so I get my first graders out looking for animals on our trails. We often find examples of insects, birds, mammals, reptiles and amphibians while on these first trips into our woods. I have the students use pictures to document the organisms they have seen. We also include the habitats and needs for each organism in subsequent lessons.

In the 2nd grade classes, we focus on the plants within our trails. Students draw varied plants to compare/contrast and study. We learn about the parts of the plants and their roles in helping the plants meet their needs.

In the 3rd grade, we first head out onto the trails to do a leaf study. I have the students make detailed drawings of four different leaves in order to compare/contrast them using Venn diagrams in future activities. We also delve into the history of our school property and discuss land usage. Our school property was originally purchased from a Christmas tree farm and many of these trees tower over the trails as an everpresent reminder of the past usage of this land.

The great thing about these starting points is that you don't have to have a perfect natural environment in order to do these activities with your students. Most school districts have some trees or grassy areas in which these same activities may take place.

I find it helpful to take students out early in the year. It establishes the expectations for going into these areas throughout the school year. There are so many science concepts that can be taught, extended or shown as a real example in nature.



Students start the 2012-2013 school year at Fern Persons Elementary in Olivet



From the President - *continued from front page*

very heavy in inquiry and modeling. Some content has been removed, notably plants and much of the human body systems. The test format has been drastically changed and the test items are more ACT-like in nature. I liked some of the new labs, but others were a bit cumbersome. I can see, however, that with some adjustments they will work nicely. The biggest message the workshop leader passed on was that we should ease into the inquiry at our own comfort level. This was a relief to many who were struggling to give up some of that control in the classroom.

Workshop 2-Molecular Modeling

The molecular modeling workshop at Hope College was pretty cool. It was primarily for chemistry teachers, but they gladly took this biology guy. This workshop entailed using a molecular modeling and a computational computer hosted at Hope. The lesson I designed using the "super computer" dealt with mono and disaccharides and other basic organic compounds and their building blocks. Oddly enough, this workshop focused not only on modeling and using models to teach science but also on inquiry.

Workshop 3-Using Models in Biology

The final workshop of the summer was local (finally sleeping in my own bed!) We used modeling and inquiry while teaching a whole genetics unit. The presenters were a group from Pittsburgh, doing research on how students learn using these tools. I am going to participate in their program and will let you how it all works out..... (sounds like I've got another article topic).

So, what did I learn during my summer workshop adventure? That I need to keep on using the good science education practices that I am currently using and that while inquiry can be scary because we have to give up some control in our classrooms, I can ease in at a level that I am comfortable with.



Biology and Life Sciences Teachers - Is this you??

Have you been missing Michigan Association of Biology Teachers (MABT) get-togethers? Well, put away those frowns! The group is planning to come back, re-energized and ready to share the best in biology instruction! Be sure to look in the MSTA conference program for the location and time of our annual conference meeting. If you can, bring a snack and copies of an activity to share with colleagues and interested parties. We will hold a share-a-thon and organizational meeting to prepare for upcoming events. Hope to see you there....so dry your tears!

FEATURED LESSON

From Mike Mansour
Retired 8th Grade Science Teacher,
Page Middle School, Lamphere Schools

MYSTERY PLANET an interdisciplinary NASA inspired lesson

Some years ago I took advantage of the Michigan Space Grant Consortium's K-12 Incentive Grants and attended the NASA's professional summer institute in Houston, TX. During our intensive experience, one teacher from Kansas shared his special lesson, Mystery Planet. While teaching 8th grade at Page Middle School in Lamphere Schools, Madison Heights, we changed curriculum directions with 8th grade assuming the instruction of secondary Earth Science. This turned out to be a challenge for me as a veteran teacher. However, with the help of the NASA Summer Institute and the professional sharing from MESTA we managed to make the transition.

Mystery Planet was just about the best thing to come down the line for me and my 8th graders. Briefly here is what you and your students do (followed by more detailed instructions):

After a brief introduction to the universe and its many dimensions, have your students create a surprisingly authentic image of a space line image of "unknown" objects in space. This art base activity requires materials and a well-ventilated area.

Each student is given a large 11x17 or larger sheet of white poster board

Groups of about 6 to eight students lay their poster boards on a large sheet of paint-proof material.

Several cans of cheap spray paint of many colors are needed. Sometimes parents will donate these cans.

Demonstrate to the whole class the method of spraying. Use three to four different cans of paint. Spray in two or three separated spots using two or three different colors on top of one another. You may want to wear disposable gloves for this. Spread the two paint layer to create a mixed blend of colors. After two globs of paint are sprayed on your white poster board, cover each with paper plates; one larger than the other.

Leave the plates on the blotches of paint and over spray the whole white poster board with BLACK Paint.

Pick up a can of white spray paint. Shake it. Invert it upside down and press it very quickly on the black poster board emitting a small spray of white paint representing a comet.

Remove the paper plates and Voila! Your Mystery Planets are revealed!

Students are then assigned to write a description of their Mystery Planet. Depending on the grade level, you will



need to establish a rubric for the report using required vocabulary and concepts in their "fictional Mystery Planet".

This two to three day lesson has a powerful effect on your universe instruction. Hanging the posters and reports in the hallway has made for effective pride in your students' work.

The Mystery Planet

After an introduction or review of our solar system and the features of planets and moons (this can be however long you think is necessary and with whatever method you use) I begin to ask questions about what students know beyond our solar system and how they think scientists are learning what is out there. These big questions lead to how many planets they think astronomers have discovered beyond our solar system. None of the adults nor students have I asked came anywhere near what I learned at NASA. While I was teaching there were over 103 planets that had been identified beyond our solar system. This came as a shock, even to the group of teachers I was with in Houston.

Next, we begin to talk about the assignment. I send home a note as homework asking the students to bring in a can of spray paint. Try to assign some of them to get at least one can of black between every three students. You will need a lot of black. They can bring in old, half-used cans as well. I also go to local stores and buy or try to get donated cans of a variety of colors. You will need a few white cans as well.

I assign two students to a poster board or large sheet of thick shiny paper; bigger the better.

I get a large sheet of plastic to place your paper sheets on per team.

Painting the Poster

We do this outside in a sheltered area where there is no wind.

I demonstrate how to do each step with everyone around me.

Spray one color about 4" or so anywhere on the poster you want. Spray over it with another color and then mess it up a little with a crumpled up throw-away glove or paper. This gives the final "planet texture". Use as many colors as they would like, but of course, limited to the amount of paint and good taste. Do these in two or three spots around the poster, using different colors on top of one another. You may want to suggest polar caps or spots of storms.

When they have the first paints on (they should be about 4 to 10 inches across, though some maybe smaller), demonstrate covering the paint spots with paper plates and other size round disk shapes by laying them on top of the paints.

continued on page 4

MYSTERY PLANET

an interdisciplinary NASA inspired lesson

continued from page 3

Next---over spray with black as the plates cover your multicolored “planets and moons.”

Take a can of white paint...this is a bit tricky...invert the can with your glove-covered finger and gently allow tiny drops of the white paint to drop onto the black paint.

Finally, take the white paint, inverted again and gently tap it on the poster board spraying out a comet like image. The can is pressed against the poster in a quick burst.

Now pick up the paper plates and see your Mystery Planets.

Everyone will be amazed with the quality of these images. It inspires students and observers to wonder and perhaps be more motivated for the next part of the assignment, THE WRITING...

Teams of students then give their planet (and perhaps galaxy) names and begin to write a “pretend” research paper, using vocabulary to describe their poster planets, moons, and other aspects as they answer questions scientists would normally do if this were a real discovery. These were then attached to the poster for display.

The writing assignment may be varied depending on the age of the students and the objectives for the unit.

The finished product makes a great hallway display of student work.

I hope you enjoy the project.

Mike (Mmansour001@comcast.net)



STEM EDUCATION OPPORTUNITIES AWAIT! Let us bring the field trip to you! Great Lakes Energy Service, Inc.'s Renewable Energy Mobile Classroom is packed with hands-on learning stations that are designed to encourage inquiry and develop understanding of the mechanics of renewable energies. For more information, visit www.greatlakesenergyservice.org or call (517) 669-5389.



MILK: NUTRIENT POWER HOUSE



* **Vitamin A** as 2 hard boiled eggs



* **Riboflavin** as 1/3 cup of whole almonds



* **Phosphorus** as 1 cup of canned kidney beans



* **Vitamin D** as 3/4 ounce of cooked salmon



* **Calcium** as 10 cups of raw spinach



* **Potassium** as one small banana

An 8-ounce serving of milk, flavored or not, gives kids as much ...



USDA National Nutrient Database for Standard Reference, Release 24

Nutrients included are either a good/excellent source in one 8-ounce serving of lowfat milk and lowfat flavored milk, and/or nutrients lacking in America's diets.

got milk?[®]

MilkPEP[®]
Milk Processor Education Program

UDIM

UNITED DAIRY INDUSTRY OF MICHIGAN

Got Questions? Call 1-800-241-MILK (6455)

WWW.UDIM.ORG

Climate Change and the Arctic Pluck at the University of Alaska Fairbanks Toolik Research Station: A Summer Adventure

BY Lisa Wininger, Plainwell Community Schools

At the Michigan State University MSP meeting, someone tossed out the idea of being able to go to Alaska to help survey plant life. I thought it sounded like fun and something that I could put to use in my classroom by knowing more about research methods and also the tundra biome. But the trip turned out to be very different than what I had imagined, and from other research opportunities that I have had. Alaska is a totally different state of mind, and Toolik Station is a world apart from any other.

Flying from Anchorage up to Deadhorse, Alaska, I looked at the scenery below and marveled at how open it was, with so much water and no trees! On the van trip down the Dalton Highway to Toolik, I was glad to be with scientists who knew where to look and what to look for, because without them, I would never have seen my first few Arctic animal species.

Toolik Camp atmosphere is that of people using every hour to accomplish all that can be done in the brief Arctic summer. Toolik Research Station is located just off of the Dalton Highway (think Ice Road Truckers), about three hours south of the Arctic Sea. The cluster of labs, the field plots, the helicopters, even the dining hall filled with people from many different places have a sense of urgency about them, work to be done while it can, before the cold, dark winter. Researchers and students all talk about their projects, their successes and failures, and their encounters with wildlife, which allowed me to listen in about research in many areas other than those in which I was engaged.

The Arctic Pluck sounded so benign and leisurely, as if we would wander around and smell the flowers. In reality, it was a deep dive into the moist acidic tundra, complete with hours of clipping tips from mosses, pulling apart multiple species of plants that originally looked identical but eventually began to take on their own unique appearances to me. One sample could be sorted and labeled in a couple of hours or it could take triple that. I broke my nails, bloodied my cuticles and was covered in dirt from chest to knees but became weirdly fascinated by



the process. By the end of those days, each tundra sample had a personality that revealed itself through exacting scrutiny, before it was reduced to a cardboard box, full of small yellow envelopes ready for the drying oven. Other groups sorted roots while soils were evaluated in ways that I never really understood (or wanted to).

Other than the pluck, I was able to go out in the field and search for mushrooms with a different research team, which was a lot more like my original vision of the trip. I toured several of the closer field plots, and was able to drive down the Dalton Highway to the Brooks Range and see more wildlife but also the amazing and severe geology of this region.

What else can I add to this description? I met and worked with so many different people, saw the midnight sun, experienced constant weather shifts, competed in the Toolik Olympics, attended research talks, ate way too much incredible food, shared a plastic tent with five of my fantastic pluck partners, and saw all of my Arctic animal list except a bear, which many have actually been for the best! I realized that climate change can be seen in the height of a shrub growing in an otherwise flat field, and people all over the world are just as concerned about that as I am. This trip taught me a great deal and I plan to share that with my students.



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).
- Majority of courses are now offered online, with a science experiment component completed using science kits and activities.
- 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.

MASTER OF EDUCATIONAL TECHNOLOGY

- Master technologies that are revolutionizing the classroom and online teaching and learning: 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*

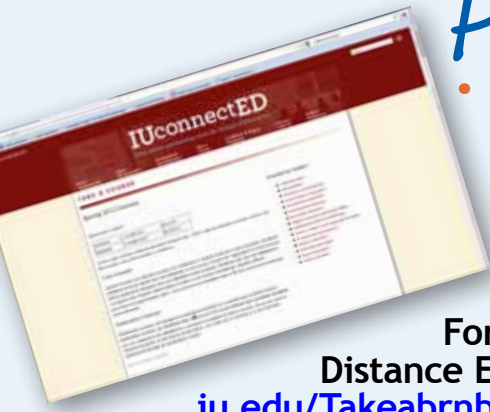
Explore over 100 undergraduate, master's, and doctoral programs in Colleges of Architecture and Design, Arts and Sciences, Engineering, and Management.

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



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

Professional Opportunities



Online Course Offerings from Indiana University!

For enrollment information or other questions, please contact Distance Education at deregstr@indiana.edu or visit <http://iuconnected.iu.edu/TakeabrnbnsbnbsCourse/Spring2012/tabid/16538/Default.aspx#science>

1) Q528: Demonstrations and Field Strategies in Science (Archaeology/Geology focus)

Spring 2012 Instructors: Adam Maltese & Valerie Altizer
Contact Information: amaltese@indiana.edu

Course Description: : This course is designed to provide in-service and pre-service teachers with the knowledge and background to include more detailed discussion of the methods and historical/cultural understanding gained from archaeological investigations and relevant geological principles. Assignments will provide students with understanding of content, a deeper understanding of the geological and archaeological history of their region, and an opportunity to develop activities with their elementary/secondary students. The course is run completely online. Students need regular internet access and a digital camera. Readings and course materials will be provided through the course website - currently, no texts are required for purchase. At this time, the course counts for course credit only, no CRUs available. The course is designed to provide students with a sufficient background in archaeology to participate in a summer archaeology field school.

Topics will include:

- What is archaeology?
- Human and Physical Landscapes
- Analysis of Material Culture
- Research Methods in Archaeology
- Archaeology and the Public (Ethics, Cultural Resource Management, etc.)

2) Q528: Demonstrations and Field Strategies in Science (Biology/Geology focus)

Spring 2012 Instructor: Adam Maltese
Contact Information: amaltese@indiana.edu

Course Description: This course is designed to provide in-service and pre-service teachers with the knowledge and skills to include more field work and outdoor data collection into their earth science, environmental science or biology/ecology courses. Assignments will provide students with both the background knowledge of their local environment and sampling skills that can be adapted to sampling in a local setting with elementary/secondary students. The course is run completely online. Students need regular internet access and a digital camera. Readings and course materials will be provided through the course website - currently, no texts are required for purchase. At this time, the course counts for course credit only, no CRUs available.

Topics will include:

- Local environment (town/county, topography, biological community, weather, maps)
- Geology - resources (soils, rocks, water)
- Biology - plant/animal/fungus survey
- Regional environment (biome/climate)
- Geological/Biological history of the local environment
- Overview of field methods in Geo/Bio - general ideas and putting together "toolbox" for sampling
- Systems & Cycles - timeframes, systems involved
- Water sampling (environmental, streamflow, biology/geology)
- Soil sampling (rock content, moisture, organics, etc.)
- Threats & Hazards - Natural Hazards and threats to Biodiversity; discussion of attempts to mitigate; use of maps

Professional Opportunities

NOT TOO EARLY TO THINK ABOUT NEXT SUMMER.....

Teachers learn about aquatic invasive species while sailing aboard a tallship... and so can you!

From Dr. Timothy Davis, Education Director, Inland Seas Education Association

Interested in learning about aquatic invasive species? Want to experience the thrill of conducting research onboard a traditionally-rigged tallship? This past summer, 29 educators throughout the Great Lakes region participated in two free teacher workshops focused on aquatic invasive species (AIS). Since 2002, Inland Seas Education Association (ISEA) has offered an annual 3-day Invasive Species Field Course that teaches the basics of AIS from methods of introduction to current remediation practices, to potential future invaders. Presentations by Great Lakes professionals in conjunction with hands-on research allowed the participants to significantly grow in their understanding of AIS which they will incorporate into their classroom activities. This past summer, ISEA was able to expand on our educational offerings through



an Advanced Invasive Species Field Course. This course was offered to educators that had either participated in our annual field course or demonstrated some prior knowledge of AIS. This five day, four night live-aboard course gave teachers the opportunity to sail from Sault Ste. Marie to Petoskey, MI onboard the schooner Inland Seas. During the trip they conducted research, discussed important AIS scientific research articles and assisted the crew in sailing the vessel. In addition to the learning and sailing, they were able to visit some of Lake Michigan's hidden treasures including Lime Island and St. Helena Island. These workshops were free, offered SB-CEUs, and a stipend in some cases. Both courses are scheduled to be offered during the summer of 2013 so if you are interested in being a part of these exciting opportunities please contact Inland Seas Education Association (info@schoolship.org).



Presidential Awards for Excellence in Mathematics and Science Teaching



Do you know or are you an exemplary math or science teacher in **seventh through twelfth grade**? Please consider nominating him/her/ them for the PAEMST Awards. The Presidential Award for Excellence in Mathematics and Science Teaching is the highest recognition a K-12 teacher can receive for outstanding science or mathematics teaching in the United States.

Why apply? Recipients of the award receive the following:

- A certificate signed by the President of the United States.
- A paid trip for two to Washington, D.C., to attend a series of recognition events and professional development opportunities.
- A \$10,000 award from the National Science Foundation.

continued on page 10

Professional Opportunities



Announcing a New Program to Develop High School Geology Courses for College Credit

In the absence of an AP geology exam Steve Mattox of Grand Valley State University and Sandi Rutherford of Eastern Michigan University (now at University of Wisconsin - Madison) have developed an exam that allows students to earn four college credits by passing an exam.

The goal of the program is to allow students to experience a rigorous geology course in high school, provide future citizens with sound scientific knowledge for making decisions, to add diversity to the geosciences, and address the growing shortage of geologists.

The exam consists of multiple choice, essays, rock and mineral identification, and topographic map skills and recognition of landscape features. The current program involves teachers and students at Hudsonville, Grand Haven, and Grosse Pointe South high schools. Since 2001, 499 students have taken the exam and 342 have passed. CMU, EMU, GVSU, LSSU, MTU, UM Dearborn, Wayne State, WMU and Hope College award credit for the high school exam and more colleges and universities have been invited to join.

Mattox and Rutherford have received a grant from the National Science Foundation to expand the program over the next three years to 15 teachers/schools. They are looking for teachers with strong Earth science/Geology backgrounds. Professional development and some material support are provided. Classrooms with a diversity of students are ideal. Please contact Steve Mattox at mattoxs@gvsu.edu or (616) 331-3734 if you have questions or would like to participate.

Presidential Awards for Excellence

continued from page 7

In addition to recognizing outstanding teaching in mathematics or science, the program provides teachers with an opportunity to build lasting partnerships with colleagues across the nation. This growing network of award-winning teachers serves as a vital resource for improving science, technology, engineering, and mathematics education and keeping America globally competitive.

Awardees are recognized for their contributions to teaching and learning and their ability to help students make progress in mathematics and science. In addition to honoring individual achievement, the goal of the award program is to exemplify the highest standards of mathematics and science teaching. Since the program's inception in 1983, more than 4000 outstanding teachers have been recognized for their contributions to mathematics and science education. If you know great teachers, nominate them to join this prestigious network of professionals.

Nominations will be open online (www.paemst.org) in October for the 2013 Presidential Awards for Excellence in Mathematics and Science Teaching. Teachers may nominate themselves or someone else (e.g., principals, teachers, parents, or other members of the general public) may nominate them for this award. **The PAEMST Online Application is now available.** To apply, teachers must first be nominated for the award. Once nominated, teachers will receive an email with a login and password to access the online application. The application deadline for 7-12 teachers is May 1, 2013. Elementary teachers (Grades K-6) are eligible to apply in 2014.

The Michigan Department of Education has asked the Michigan Science Teachers Association to oversee this program for the State of Michigan. We are honored to be the host of this awards program. If you have any questions, please feel free to contact, Betty Crowder, our State Coordinator, at betty_crowder@msta-mich.org. In the meantime, please visit the Presidential Awards website in October to find the nomination form for the teacher of your choice! Why not you? www.paemst.org The rewards are worth the effort! You deserve it!

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)

INTERNATIONAL OPPORTUNITY!

Diversifying Science Classroom Practice - Engaging with the 'Youtube Generation'

By: Brendan O'Brien

What is www.60secondscience.net?

60SecondScience is a fully online International Video Competition sponsored by the Department of Education (DEECD-Innovation Next



Practice Division), Victoria, Australia. Since its first iteration in 2008, it has enjoyed continual growth and appeal, from 30 Victorian school-only participants, to well over 300 science videos uploaded in 2012, with over 1100 registering from 40 countries. The competition is **Free to Enter** and links directly to required student outcomes over a number of Science, Citizenship and ICT Learning Standards. **\$10,000 in cash prizes** is distributed each year, as determined by a prestigious **International panel of judges**. There are **Divisions** which cater for students of different ages.

Why is www.60secondscience.net used in Science Classrooms?

Teachers can engage the interests and skills of students in a way that increases the depth of their science knowledge as they hone their multimedia skills. Many of today's students are an entrenched part of the 'youtube generation' and are more than comfortable with being producers of content, whereas other generations were comfortable as mere consumers of content. Many students are 'over' powerpoint reports by the time they get to secondary and High School settings, and are happy to shoot video on their smart-phones, flipcams, videocameras or webcams. The competition is easily adapted to be used not as an *add-on*, but as a *contingent element within the existing science curriculum*

How is www.60secondscience.net used in Secondary/High School Science Classrooms?

- A. Teachers give students the option of making a 60second video to demonstrate their understanding of a topic or unit of work they are studying/researching in any area of the senior science curriculum. Eg Chemistry-physics: [Sublimation](#), [Doppler Effect](#), [Newton's Laws](#), [Occipital Lobe](#), [Projectile Motion](#), [Chemical Bonding](#), [Hot air balloon physics](#)

Making a short explanatory video is often done as an alternative to producing a written report, poster or Powerpoint.

- B. Teachers give the student teams the option to make a 'prac report video' instead of the standard 'written' prac report. Eg. [Photosynthesis](#), [The Law of Reflection](#), [Heart-rate](#), [Thermal expansion](#), [Displacement Reactions](#).

In both cases, students are required to research deeply and collaborate closely to refine their understandings and condense their knowledge to convey their key concepts and ideas into the 60 second format.

How is www.60secondscience.net used in Primary/Elementary Science Classrooms?

Students work with their teacher on a particular science topic or integrated study unit, and produce a video over a number of weeks as part of their weekly routine. This can be used as a science teaching strategy at any grade level.

eg. [Grade 3/4: The Mpemba Effect](#), [Grade 5/6 Lemon Battery](#), [Grade 1 Temperature](#), [Grade 6 Plant Osmosis](#)

How does www.60secondscience.net support Multicultural Classrooms?

The LOTE Divisions encourage entrants to use Languages Other Than English. Eg [Cantonese](#), [Indonesian](#), [Italian](#), [Chinese](#), [French](#), [Cantonese](#), [Malayalam](#),

Divisions:

International primary / elementary school division - \$400/\$100

International secondary / high school division \$400/\$100

International Open - \$400/\$100 professional/amateur film-makers, teachers.

International LOTE -\$250 with English sub-titles, spoken in a Language Other Than English.

Best Cinematography - \$250 for videos in any Division

Best Animation - \$250 for videos in any Division

Australian Primary Student - Prizes in each State/territory

Australian Secondary Student - Prizes in each State/territory

Australian Primary Student LOTE

Australian Secondary Student LOTE

Worst Cola-Candy-Mint-Lolly video - All Cola-Candy-Mint-Lolly videos are AUTOMATICALLY registered in this Division) and the 'Winner' gets a Certificate + offer of free online video production and science workshop for teachers and students

2013 Deadline: register by 5 August 2013, Upload videos by 5 August 2013

Contact:

Brendan O'Brien

Science, eLearning | DEECD, Hume Region, Victoria, Australia |0438 420 027

Convenor: www.60secondscience.net

Twitter: @Brendano <http://twitter.com/brendano>

Facebook: <http://www.facebook.com/60SecondScienceVidComp>

The Fledgeling



The Fledgeling flies! MSTA science lessons for elementary teachers is published as a recurring feature in the MSTA Newsletter. Establishing good science practices are essential for a solid science program. This is true for all age groups. Through hands-on, inquiry based science, special needs students are achievers too! The Fledgeling is edited by Sally DeRoo, MSTA.

In the previous Fledgeling we made collections of various items found on a “hunt” around the school yard. Hopefully, a variety of different type items were collected. Students sorted the items and listed the properties of each. A great vocabulary lesson. Students may have discovered the grounds required better cleanup. A recycling program might be considered as a project. More waste containers and awareness of school property could be a future project.

Collecting data and making observations help answer questions we ask about the change in seasons.

WATCH THE SEASONS CHANGE

The seasons are changing. Recording regular observations of seasonal changes in a science journal helps to promote quality data keeping. The journal recording also helps to focus when interpreting the data collected.



TREES / CHANGE AS THE SEASON CHANGES

Materials for each student:

- Colored Pencils or crayons
- Science journal
- Pencil
- Legal paper (2 sheets)

DIRECTIONS:

1. Prepare the students for their observation by listing key word, vocabulary they will use to record their observations. Examples: sun, clouds, blue sky, 70°F, 35°C, no wind , leaves, ground, yellow, brown, red, color, green, etc.
2. Each student should select a tree on the school grounds or within safe walking distance. The tree will be observed over a period of several weeks.
3. Students will illustrate the tree and the ground under the trees. Weather permitting, the illustrations should be recorded in color and on site.
4. Educator should have information as to the kind of tree or trees the students are illustrating. The selection should be a deciduous tree: Maple, Elm, Sycamore, Locust, Oak, etc.

continued on page 14

Trees / Change as the Season Changes

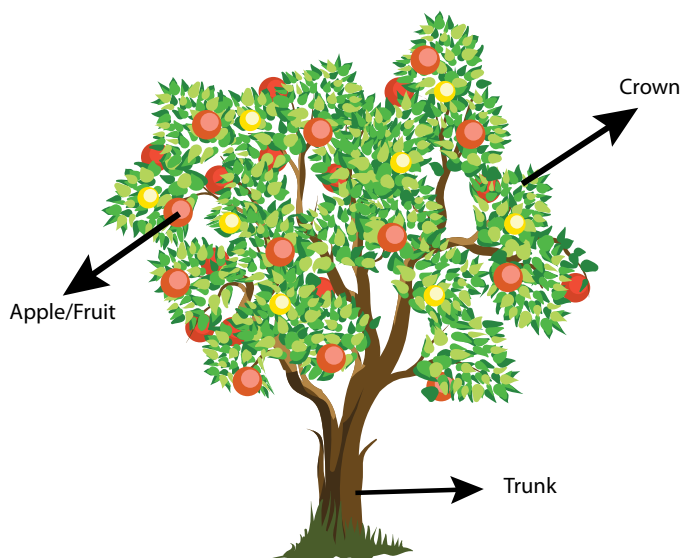
DIRECTIONS: *continued from page 12*

5. **Final work on the observation** and additional information gathered can be completed upon return to the classroom. A large school calendar with a “teacher” tree and data would help some students who find directions difficult. Vocabulary lists of “words to use”, are often a help to students who have problems with reading and writing in the content area.
6. **Schedule the next date for observation.** Mark journals and calendar.
7. **Before the next observation**, discuss what changes might be expected and why. Record the temperature and time of day before going out to observe.
8. **Repeat the data collection** and observations for several weeks.
9. **Discuss the illustrations and data** recorded in student journals. Look for observable differences in temperature, light, weather, etc.
10. **Conduct a class discussion** as to what students have learned during their observations.



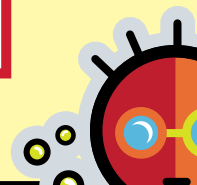
Journal (Sample Page)

Date	Time	Temperature	Weather
October 1, 2012	9:00 am	73°F	Sunny



**My tree is green. My tree is tall.
There is grass under my tree. There
are apples growing on my tree.**

continued on page 15



Trees / Change as the Season Changes

DIRECTIONS: *continued from page 14*

As the seasons change, living things, Plants/Trees, in the Midwest ,Great Lakes Basin, are preparing for the winter ahead. The leaves change color. They are no longer manufacturing and storing food. The days are shorter, there is less light and often less rain (water). The food making process slows down or stops.

Photosynthesis is the food making and storing food process of green plants.

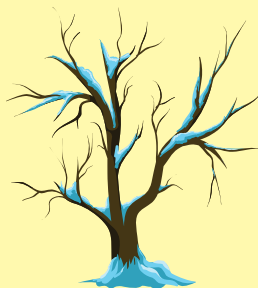
Photosynthesis means putting together with light. The presence of Chlorophyll, a green pigment, is needed to make food. When the leaves stop making food, all the other colors, pigments, in the leaves can be seen.

11. Repeat the observation process several times during the coming months. Note how the trees react to snow and winter wind. In the spring, introduce new vocabulary. Bring the science journals up to date. Illustrate how the selected trees are changing as the season changes.
12. When the fall to spring observations are complete and the journal recordings have been discussed, construct a flow chart of the change in the trees. Use the legal paper folded into sections. Write a summary: "My Changing Tree".
13. As an extra project, make a large class Tree Book. OUR CHANGING TREES. Such a project would be an excellent presentation for Parent's Night!

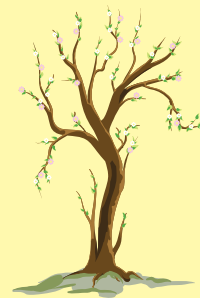
Changing Trees



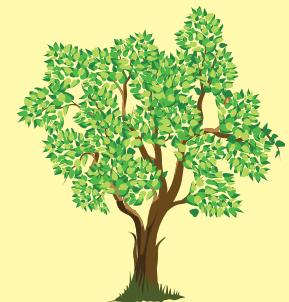
Fall



Winter



Spring



Summer

As Elementary and Special Education Educators, consider science content and process through solid activities to enhance reading and communication skills.

Start a room library for research at all grade levels. Textbook and supplements are marvelous for quick answers to simple questions. Many students read the pictures before the content and do well during discussions.

We would like suggestions and comments regarding the Fledgeling. Do share the newsletter with your colleagues.

Reference: A fast and easy reference for educators: Bosak, Susan V , Scholastic, Science Is, A Source book of fascinating facts, projects and activities ISBN# 0-0590-74070-9

"Pure Michigan Science"

THE NEXT GENERATION

The 60th MSTA State Conference March
78-9 2013 at Eastern Michigan University

Join your fellow science educators at the next state conference that will be the official roll out of the Next Generation Science Standards (NGSS) for



Michigan. In keeping with our conference theme, we are honored to open Friday morning at 8:00 AM with



Dr. Joseph Krajcik. Joe is a leader on the NGSS national writing team. He will share important insights regarding the transition in your science teaching and evidence of your students' learning embodied by A Framework for K-12 Science Education.

Follow up sessions with include a panel discussion on key components (for example: assessment, modeling, & discourse) of the NGSS that will provide both an overview and opportunity for audience questions. In addition three "boot camp" sessions providing practical perspective on implementation from an elementary, middle and high school teacher and leader perspective. Finally, over 26 workshops and presentations identified as NGSS sessions will be offered both days.

National Science Teachers Association's (NSTA) Learning Center

The National Science Teachers Association's (NSTA) Learning Center is a FREE Resource for all teachers. It is provided in collaboration with the Michigan Science Matters Network. The Learning Center provides the best of Onsite PD with the best of Online PD in a collaborative style with colleagues in Michigan and across the United States. Over 3500 resources are provided for you, at no cost. For more information, please visit:

<http://learningcenter.nsta.org>

After registering, just use the promo code: sm-mi

Guided Tours Planetarium Learn By Doing Scavenger Hunts Early Childhood



Now
schedule
online!

Topics include: Geology •
Paleontology • Astronomy • Weather •
Archaeology • Ecology • Dinosaurs •
Wildlife

SCHOLARSHIPS AVAILABLE

Call (734) 764-0480

or email UMMNH.Scheduling@umich.edu
to request an Educator's Guide!

Educator's Guide also available online



UNIVERSITY OF MICHIGAN
Museum of Natural History

1109 Geddes Avenue, Ann Arbor, MI 48109

tel 734.764.0478 fax 734.647.2767

www.ummnh.org

Coming Soon

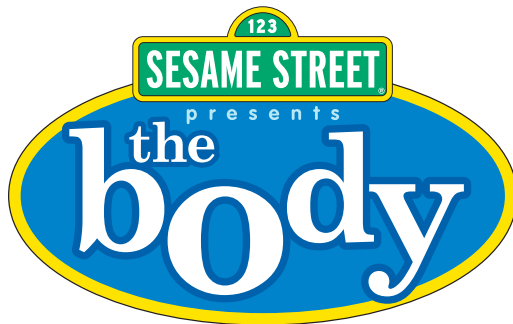


The Adventures of Miss Ana Malia *Ana Raises a Butterfly*

The Adventures of Ana Malia is a book series written by two teachers with the life science standards in hand.

Contact for purchase information
marydocherty@wowway.com
merriju@comcast.net

Big, squishy noses. Red, furry feet.
It's an exhibition all about the body!



Now through January 27!

Are your kids learning about the body and how it works? This engaging exhibition utilizes Sesame Street to teach kids about their bodies and how to maintain a healthy lifestyle.

To book your field trip or download the Educator Guide, visit imaginationstationtoledo.org

*Exhibition included in the cost of admission.



Downtown Toledo • 419-244-2674

Created and produced by sesameworkshop.org. The nonprofit educational organization behind Sesame Street and so much more



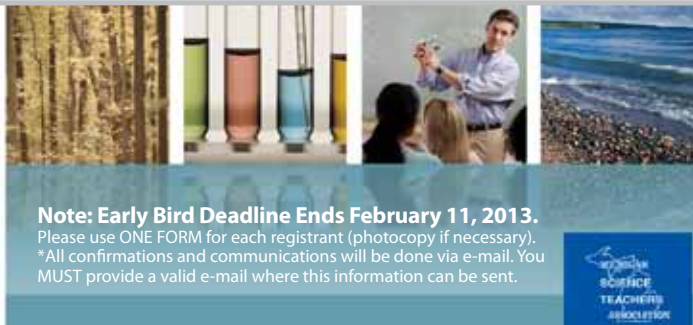
Sesame Workshop®, Sesame Street® and associated characters, trademarks and design elements are owned and licensed by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

Pure Michigan Science

THE NEXT GENERATION

MSTA Registration Form

MSTA 60th Annual Conference - March 8-9, 2013
Eastern Michigan University, Science Building &
Student Center - Ypsilanti, Michigan



Note: Early Bird Deadline Ends February 11, 2013.
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) College

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)

Name on Card _____

Billing Address _____

Billing City/State/Zip _____

Signature _____ Date _____

Card Number _____ CVV Code* _____ Exp. Date _____

*3 or 4 digit code on back of card

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:	Fee	Total
<i>*All registrations MUST be sent in the same envelope.</i>		
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:

Members:	Fee	Total
Registration One Day: <input type="checkbox"/> Friday or <input type="checkbox"/> Saturday <small>(*\$105 after February 11, 2013)</small>	\$65	\$ _____
Registration Two Day <small>(*\$115 after February 11, 2013)</small>	\$90	\$ _____
Student** and Emeritus Registration One Day: <input type="checkbox"/> Friday or <input type="checkbox"/> Saturday <small>(*\$45 after February 11, 2013)</small>	\$20	\$ _____
Student** and Emeritus Registration Two Day: <small>**Must be a FULL time undergrad student. Grad students need to pay regular registration rate. (*\$60 after February 11, 2013)</small>	\$35	\$ _____
Non-teaching Spouse	\$35	\$ _____

Non-Members:

Registration One Day: <input type="checkbox"/> Friday or <input type="checkbox"/> Saturday <small>(*\$160 after February 11, 2013)</small>	\$125	\$ _____
Registration Two Day <small>(*\$185 after February 11, 2013)</small>	\$150	\$ _____
Student* and <input type="checkbox"/> Emeritus Registration One Day: <input type="checkbox"/> Friday or <input type="checkbox"/> Saturday <small>(*\$85 after February 11, 2013)</small>	\$65	\$ _____
Student* and <input type="checkbox"/> Emeritus Registration Two Day: <small>*Must be a FULL time undergrad student. Grad students need to pay regular registration rate. (*\$100 after February 11, 2013)</small>	\$80	\$ _____
Non-teaching Spouse	\$35	\$ _____

Other Registration Options:

Friday Dinner (6pm)	\$25	\$ _____
SB-CEUs	\$15	\$ _____

Please consider making a donation to the Michigan Science Teachers Association. Funds collected will be used in the advancement of Science Education throughout Michigan.

<input type="checkbox"/> \$2 <input type="checkbox"/> \$10 <input type="checkbox"/> Other - please indicate amount \$ _____		\$ _____
Total	Grand Total	\$ _____

For early registration rates, registration and payment MUST be received by February 11, 2013. 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 11th 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 20, 2013 (request must be made in writing). Substitutions may be made on or before February 20, 2013. 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 Thursday evening Vendor Open House).