

Science Update
October 2016



Ainissa Ramirez, science "evangelist"
Keynote for NSTA Conference in
Minneapolis, Oct 27-29

This periodic update from the [Minn. Dept. of Education](#) (MDE) is sent to a few email lists, including the [Minn. Science Teachers Assn.](#) (MnSTA) and district/organization contacts. We encourage you to forward this to other teachers and science leaders. See MDE contacts at the end of this document.

Note: MDE does not endorse any resource or event that is not conducted by MDE.

*** indicates an item that was not in the previous edition**

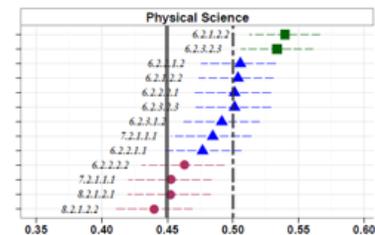
News

***NSTA Conference Minneapolis, Oct 27-29: Celebrate Science: 10,000 Connections**

Take advantage of a national science conference from the National Science Teachers Assn. (NSTA) coming to Minneapolis! Join 2000 science educators to hear national level presenters and grab resources at a large exhibition hall. Learn about the hottest topics in science education and network with like-minded educators. [See more information below.](#)

*** MCA Science Benchmark Reports Available**

The benchmark reports give a graphical representation of the student performance of a school or district by benchmark that was assessed. These reports can also be used to compare performance with previous years and between content areas. To access the reports go through a person in your school who is authorized to get reports from Pearson Access, such as your administrator or District Assessment Coordinator. The guide for interpreting the reports is available at [this link](#).



***Safety Alert: Disposing Live Organisms**



The Minnesota DNR says two red swamp crayfish have been found in Clay County's Tilde Lake. This is the first time the invasive species have been found in a Minnesota lake. One possible source of this new exotic species is release from a classroom aquarium by a teacher or student. The DNR recommends that teachers check the prohibited invasive species list before buying any classroom animals and make certain they

are dead before disposal. Flushing them down the toilet is a not a sufficient solution. See [the DNR news release here](#).

Presidential Awards Announced

The White House announced the Presidential Awards for Excellence in Mathematics and Science Teaching from the last two cycles. There will soon be an announcement of their reception at the White House and other celebratory events in Washington DC. The Minnesota science awardees are:

- Elementary: Frances Stang, O.H. Anderson Elementary School, Mahtomedi
- Secondary: Lisa Houdek, Central High School, St. Paul

We also announce the Minnesota science finalists for 2016. Their applications were forwarded to the National Science Foundation for judging for the national award.

- Jill Jensen, Glacial Hills Elementary School, Eagan
- Jim Schrankler, St. Anthony Park Elementary School, St. Paul

Meet them at the MnSTA reception at the NSTA Conference on Oct. 27th.



Frances Stang



Lisa Houdek

MDE Website is reorganized

Many of the pages you may have accessed are now moved. Add the following bookmarks for the new locations of these science-related pages:

[Science Content Page](#), [MCA Testing](#), [Test Specifications](#), [MCA Item Samplers](#), [Licensing](#), [Green Ribbon Schools Award](#), [Geographic Information Systems \(GIS\)](#), [School Technology](#),

Teacher Events and Workshops

*Energy from Renewables: Global Challenges, Minneapolis, Oct. 1

The University of Minnesota is hosting a renewable energy workshop at the University of Minnesota on Saturday, October 1. The objective of the workshop is to discuss our use of energy and its environmental consequences leading to climate change. There will be a breakout session for teachers who would like to teach this topic as a College in the Schools course. [Click here](#) for information.

*Fly to the Future on STEM Pathways, Roseville, Oct. 6-7

Join AirSpace Minnesota and Aerospace Industries Assn. for their STEM Workforce Fourm at the Minnesota Dept. of Education Conference Center. Participate in this interactive dialogue on how we can work together to design and build a strong STEM pathway that engages students throughout K-12 and beyond, connecting them with practitioners, career awareness and education and training opportunities. Keynotes include Dale Klapmeier, co-founder of Cirrus Aircraft and Dr. John Olson of Sierra Nevada Corporation. For question and the agenda contact [Kristi Rollag Wangstad](#). [Register at this link](#). The fee to cover lunches is \$25. **Registration deadline is September 30.**

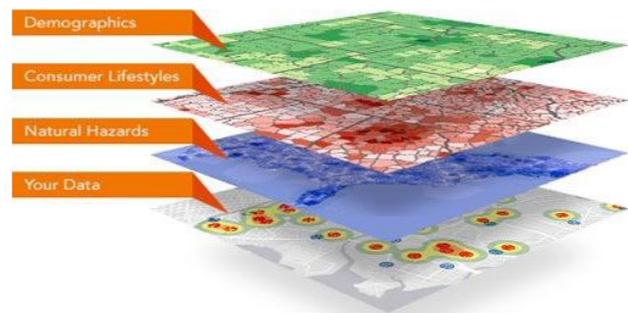
*EdCamp Math and Science MN, Prior Lake, Oct 21

Edcamp is a form of *unconference* designed specifically for teachers and their needs. The agenda is created by the participants at the start of the event. Rather than presentations, people are encouraged to have discussion and hands-on sessions. Edcamp Math Science MN is designed to focus topics specifically around math and science education within the Edcamp framework. The event is at Prior Lake High School, 9am – 3 pm. It is free with a food truck available for lunch. [For information and registration, click here.](#)



Geographic Information Systems Educator Day II, Oct. 26, Duluth

The organization of statewide GIS professionals is inviting teachers to an Educators day at their conference at the Duluth Convention Center from 9 am – 4:30 pm. Teachers will learn about this online mapping resource ([ArcGIS Online](#)) that is available free to all schools. This FREE event (including lunch and snacks) will include sessions presented by teachers and professionals for both beginning and advanced users. The schedule provides opportunities to collaborate with other teachers and GIS professionals on projects for the classroom. CEUs will be available for teachers and administrators. Early registrants may get sub costs covered. For more information and registration, [click here.](#)



Keynote: *Why We Need More People to Ask Why*

Ainissa G. Ramirez is a science evangelist who is passionate about getting the general public excited about science. She coauthored *Newton's Football: The Science Behind America's Game* and authored *Save Our Science: How to Inspire a New Generation of Scientists*. Before taking on the call to improve the public's understanding of science, she was an associate professor of Mechanical Engineering & Materials Science at Yale University. Dr. Ramirez now focuses her energies on making science fun as well as co-hosting a science podcast called Science Underground.

Every year, five million kindergartners enter school armed with the word, "why." However, by the time they leave school, just a few years later, those "whys" grow silent. This talk will make a case for asking why and will share STEM strategies to keep those "whys" aglow in students.

Here are examples of sessions in the **three strands** and the featured presentations.

Teaching Science in a Connected World

- NASA Astrobiology: The Search for Life Beyond Earth
- Direct Measurement Video for Science Inquiry
- Using News Media to Learn About Science in the Connected Science Classroom
- Evolution for Educators



Lucy Dunne,
“Wearable
Technology”

STEMify Instruction through Collaboration across the Curriculum

- If They Make It, They Will Learn: The Maker Movement and K–12 STEM
- Laser Cutters + 3D Printers + Vinyl Cutters = Bolstered K–3 Math Curriculum
- Incorporating STEM Across the Curriculum Through Inquiry
- Engineering from Every Angle: Engineers as Proficient in Emotional Intelligence as Well as Analytical Skills



Melanie Laforce
“Inclusive STEM
Schools”

Celebrating Elementary Science and Literacy Connections

- Three New Lessons for Early Childhood STEM Educators: Engineering (as) an Answer to a Need
- Whoosh, Crack, Slide, and Crash Your Way into a Grade 5 Earth Science Unit
- Understanding Seed Dispersal with Engineering Practices and Tradebooks
- Disciplinary Literacy and Reading in the Content Area of Science: Yes! You Can Do Both as an Elementary Teacher!



Christine Royce and Steve
Rich

Check out the full schedule of over 300 sessions and events [at this site](#), including Physics Day, Chemistry Day, and Engineering Day on Friday and a MnSTA Reception for Minnesota teachers on Thursday at 4:30.

[Click here](#) for more information and registration. Membership in MnSTA qualifies you for the member rate for the conference. Register by October 7 for a \$25 discount.

Download [this letter](#) and give it to your principal to support your request for conference attendance.

Volunteering for the conference provides a 50% discount for 8 hours work and 100% for 16 hours work. Go to [this website](#) for details.

I absolutely LOVE the professional development opportunities provided at an NSTA conference! It is an opportunity to network with like-minded professionals – people passionate about science and STEM education. – Susanne Hokkanen, past attendee

***Project Learning Tree Fall Workshops**

Whether you teach preschool or high school, in any subject, strengthen your environmental education toolbox with PLT!

PLT K-8 Workshop November 12, 2016, 9 am - 3 pm, Minnesota Valley National Wildlife Refuge, Bloomington. Free! Includes lunch, CEUs, the [PLT Pre-K8 Activity Guide](#), and a swag bag of great teaching resources.

Southeastern Forests and Climate Change

Attend one of the two sessions below and learn about PLT's new *Southeastern Forests and Climate Change* secondary module. Most activities fully apply to Minnesota forests. Participants have the option to buy the 240-page printed module for \$20. [Download the whole module](#) free. 14 full-length activities. For high school teachers

Climate Science, STEM and Forests October 20, 2016, 9:50-10:50 am, MEA conference Free! Admission to MEA conference is free and no registration is required.

Climate Change and Forest Ecosystems October 27, 2016, 2 - 3 pm, NSTA conference. Free with [NSTA registration](#)

Taking STEM Outside Oct. 28, 2016, 3:30 - 4:30 pm, NSTA Conference For elementary teachers. Participants will get some activities, but no PLT books will be available. Free with [NSTA registration](#)

***Educator Academy in the Amazon Rainforest + Machu Picchu**

The July 1-11, 2017 Educator Academy in the Amazon Rainforest of Peru is a cross-curricular professional development workshop for K-12 formal and informal educators.

- Participate in **citizen science projects** and **inquiry based field studies** on a 1/4-mile **Rainforest Canopy Walkway** in one of the most biologically diverse environments on the planet.
- Spend **a day in an Amazon village** as you **explore the complexities of sustainability** and the role of education in creating a sustainable future for Amazon children.
- **Work with fellow educators** to explore strategies for using the Amazon as a vehicle for incorporating STEM education, inquiry-based learning, and sustainability science education into your classroom.

Get the details and download a syllabus and scholarship application at [this link](#).

***[Playdates for Educators \(of all sorts\)! With Anmarie Thomas](#)**

One of my favorite things about leading UST's Playful Learning Lab and teaching in the Center for Engineering Education is the opportunity to meet and collaborate with incredible people, many of who are educators in a formal, or informal sense. I've been thinking that it would be wonderful to have an opportunity to bring together a diverse group of people in the Twin Cities who are interested in Playful Learning and STEAM/iSTEM. Thus, I am delighted to announce that the Playful Learning Lab will be hosting monthly, free playdates for educators, artists, and makers who want to discuss, share, and... [Click here for more info.](#)

Teacher and School Awards and Opportunities

* Green Ribbon Schools Award

Gain national recognition for your school's efforts at being "green." The U.S. Dept. of Education Green Ribbon Schools Award honors PreK-12 schools, school districts and post-secondary schools that are exemplary at

- Reducing environmental impact
- Improving health and wellness
- Providing effective environmental education



Schools prepare an application that is initially evaluated at the state level and finalists are sent on for national evaluation. Applying for the award provides an opportunity to analyze energy and water usage, waste reduction, and transportation. Schools review the strategies that promote healthy practices by students and teachers. In addition, teachers examine their curriculum for instruction in environmental concepts, skills and careers. Through the application process members from various sectors of the school community collaborate to improve their efforts toward sustainability.

[View the application for Minnesota schools and local information](#) or contact [John Olson](#), MDE Science Specialist. [View information about the national Green Ribbon Schools program.](#)

*Professional Development Grant Opportunities

The Education Minnesota Foundation offers scholarships for licensed teachers obtaining National Board Certification. [Check this link.](#)

The Bruce Vento Science Educator Professional Development Grant supports educators who teach science as part of their day and want to acquire and share new skills and knowledge. You may request up to \$1500. The deadline is December 9. [Go to this link.](#)

*SciGirls

Twin Cities PBS and St. Catherine University are partnering on a new project, **SciGirls Strategies: Gender Equitable Teaching Practices in CTE Pathways for High School Girls**, to address barriers in career and technical education (CTE) for Minnesota high school girls. With funding from the National Science Foundation, **SciGirls Strategies** is designed to help CTE programs recruit and retain more girls in STEM pathways, specifically in computing, engineering and manufacturing. As we look at the low numbers of girls in CTE-STEM courses and the workforce, we believe our nationally recognized NSF-funded research-based gender equitable teaching strategies will be of great value to educators and counselors. Teachers will receive a \$600 stipend, pay for travel to the training and continuing education credit for 40 hours of professional development. For questions or to indicate interest, contact [Leah Defenbaugh](#)

Send your used Science Books to Schools in Africa



When John Olson went to Liberia*, he found that library of his school had many books with Minnesota school stamps. He planned his biology lessons with a textbook from Verndale High School and read a novel from Anderson Open School. These had been sent to Africa by a St. Paul based organization, Books for Africa (BFA). John was able to arrange to have a 40 foot container of books shipped to Liberia for distribution by Peace Corps volunteers.

BFA collects, ships and distributes books to students of all ages in Africa. They are the largest shipper of donated text and library books to the African continent. They collect all types of books appropriate for African students. High school and college textbooks are especially needed. As a general guideline, books should be less than ten years old. You can drop off books at their St. Paul warehouse or ship them to the Atlanta workshop. For details, go to the [BFA Donate Books](#) page. Help to end the book drought in African schools

*To learn more about John's Peace Corps activities in Liberia, you can access his journal at [this link](#).

Chemical Disposal

The Chemical Safety Day Program is again being offered by the University of Minnesota. The program is designed to assist schools and colleges in disposing of unwanted chemicals and hazardous waste from science, art, industrial technology, and maintenance departments. The program comes to the school site for pick-up. [Click here](#) for Information about the program.

Farm to School Grant Program

This MN Dept. of Agriculture program supports Minnesota school districts and child care providers in the processing of Minnesota agricultural products. Grants are intended to:

- Create plans that identifies specific equipment, tools, training or policies needed by school districts and child care providers;
- Purchase equipment to allow schools and child care providers to purchase, prepare and serve more Minnesota grown and raised food.

For more information go to [this MDA website](#). Applications are due Nov. 2.



Learning with Trees Grant

The Learning with Trees grant program partners with several Minnesota schools to educate youth about the importance of trees through hands-on environmental education each year. Schools come away with new trees for their school grounds, a usable outdoor classroom, and lessons for students about trees and the environment. This program is a lot of fun and has been a valuable learning experience for thousands of students and teachers across the state since 1992. It is FREE for schools to participate and it is valued at over \$10,000. For more information go to this [Tree Trust website](#).

Student Awards, Competitions and Programs

*Galaxy Ride Bell Museum Event, Minneapolis, Oct 12

Educators and astronomers from the Adler Planetarium (Chicago, IL) will join the Bell for a day of astronomy investigations. From 10 am – 3 pm, the Adler will join in on the fun with science activities about light, color, meteorites, planets, and more. View the Sun safely through a telescope (weather permitting) and meet two Adler astronomers and find out more about their careers! Teachers, book today to reserve a spot for your class. Space is limited. Call 612-626-9660 for details or [click here](#).



*Physics Force Show, Minneapolis

The University of Minnesota's Physics Force will perform an educational and entertaining public show in January. Join us to experience how physics is interesting, understandable and fun! Be sure to share information with your teaching colleagues and announce the show to your students. January 9-13, 2017 NorthropCarlson Family Stage at the University of Minnesota. The show is free, but reservations are required. The public show fills up quickly so we wanted to give you the first opportunity to register and get it on your calendar. [To register, click here](#).

*High School Science Student Award



The Science Museum of Minnesota is accepting nominations for high school students of color who deserve recognition for their STEM achievements and passion for the Donaldson Science Award. The Award winners receive \$500, a one-year membership to the Science museum and a recognition event. The nominations must come from educators or STEM professionals and are due by November 9. [Click here for details](#).

*Tech Experience Tours

The Minnesota High Tech Association (MHTA) is providing a unique event for students interested in learning more about technology and the high tech business world. During the 2016-2017 school year, we are connecting high school students with STEM-focused companies and high-tech businesses in Minnesota. We are working with a number of education institutions and non-profit organization to provide high school students with the opportunity to have a first-hand encounter with a high-tech work environment.

Through a generous grant from the AT&T Foundation, MHTA and its Foundation is also able to provide support for some Tours. Educators may apply for funds at this link – [Tech Experience Tours Scholarship Application](#). Even schools that do not receive a scholarship can still participate in the program. Contact [Tim Barret](#) if you are interested in participating in the experience or have any questions.

Scientists in the Classroom

The Scientists in the Classroom program of the National Center for Science Education is a platform for teachers and scientists to collaborate as colleagues, peers and partners in the scientific enterprise to further science education. While the scientist can act as a resource for the teacher and students, the teacher and students can, in turn, help the scientist better understand how to convey their work to a larger, more diverse, and often skeptical audience. By connecting early career scientists with educators, we hope to both enrich middle and high school students' climate change and evolution education, and to give scientists a better understanding of the challenges faced when teaching these often socially contentious and misunderstood topics.



NCSE has also formed a network called [NCSEteach](#) that includes an electronic newsletter. For information go to [this National Center for Science Education website](#).

Minnesota Competitions and Programs

Many competitions, out-of-school programs and field trip opportunities are listed in the [Reach for the Stars Catalog of Programs and Activities](#).

MDE Contacts:

[Dawn Cameron](#), Science Assessment Specialist

[John Olson](#), Science Content Specialist

[Doug Paulson](#), STEM Integration Specialist

[Jim Wood](#), Science Assessment Specialist

Send submissions for the Science Update to John Olson

Other Minnesota Links:

[Minn. Dept. of Education Science Page](#)

[Minn. Science Teachers Association](#)

[Frameworks for MN Science and Mathematics Standards](#)

[Get – STEM](#) Connections between schools and businesses

[Mn-STEM](#) STEM programs and resources for families, schools and community

[Sharing Environmental Education Knowledge](#) environmental education resources

[Minnesota Academy of Science](#): Science Fair, Science Bowl and other competitions

[Mn DNR Education website](#): Curriculum, professional development, posters, etc.