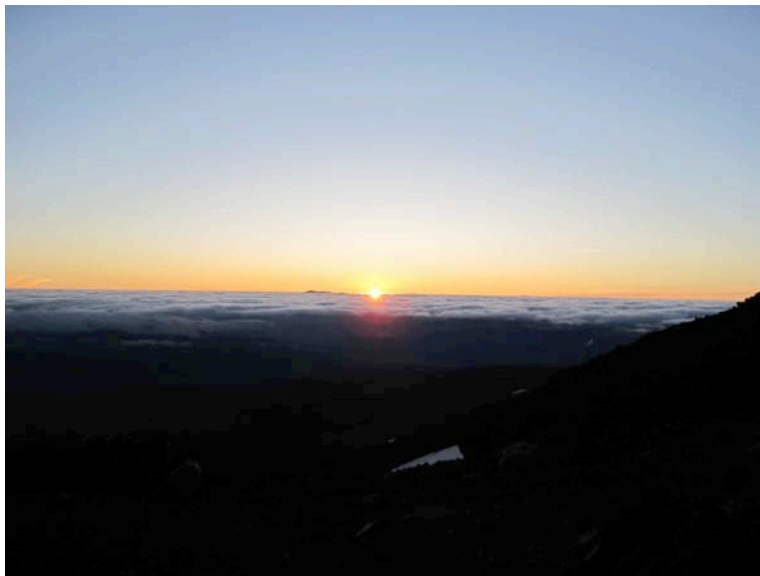


**Montana Science Teachers Association**



# **NEWS JOURNAL**

**A publication of the Montana Science Teachers Association**

**September 2010**

## Submitting Articles to the MSTA News Journal

When submitting articles, please adhere to the following criteria:

- Electronic submissions are preferred in Microsoft Word format. These can be attached to your email message.
- If in doubt about format, submit your work in .rtf format.
- If truly in doubt, paste your submission in the body of the email message.
- Lab activities may be mailed. Please cite any references and also state which National Science Standards your activity meets.

**John Graves, Editor**  
 1112 Hunters Way  
 Bozeman, Montana 59718  
[graves@montana.edu](mailto:graves@montana.edu)

**Tentative Submission/Publication Dates**  
 August 15/September  
 November 15/December  
 February 15/March  
 April 15/May

### Montana Science Teachers Association Membership Application

Name _____		Date _____																	
Last	First																		
Address _____		Phone (____) _____																	
_____		_____																	
City	County	State	Zip																
School/Affiliation _____		<table style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Dues Category</th> </tr> <tr> <td>1 year</td> <td style="text-align: right;">\$20.00 ____</td> </tr> <tr> <td>MSTA/MCTM</td> <td style="text-align: right;">\$30.00 ____</td> </tr> <tr> <td>MSTA/MEEA</td> <td style="text-align: right;">\$30.00 ____</td> </tr> <tr> <td>3 years</td> <td style="text-align: right;">\$50.00 ____</td> </tr> <tr> <td>Life</td> <td style="text-align: right;">\$150.00 ____</td> </tr> <tr> <td>Student</td> <td style="text-align: right;">\$5.00 ____</td> </tr> <tr> <td>Retired</td> <td style="text-align: right;">\$5.00 ____</td> </tr> </table>		Dues Category		1 year	\$20.00 ____	MSTA/MCTM	\$30.00 ____	MSTA/MEEA	\$30.00 ____	3 years	\$50.00 ____	Life	\$150.00 ____	Student	\$5.00 ____	Retired	\$5.00 ____
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___ K-6	___ All sciences	___ Physics																	
___ 6-9 MS or JH	___ Life Science	___ Chem																	
___ 9-12	___ Phys Science	___ Other																	
___ College/Univ.	___ Earth Science																		
___ Sup/Admin.	___ Biology																		

Make checks payable to MSTA  
 Return to LeAnne Yenny  
 3880 Equestrian Lane  
 Bozeman, MT 59718

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Montana Science Teachers' Association

## From the President

Hello all, and welcome to the 2010-2011 school year!

### **MEA-MFT Educators Conference**

As the new president of the Montana Science Teachers Association, I'm excited about our annual meeting during the MEA-MFT Educators Conference, held in Helena on October 21 - 22. MSTA will have over 70 workshops, and I can tell you that the workshops look to be incredible. I hope you will come to Helena and bring lots of your colleagues!

### **New Teachers' Breakfast**

Last year we started the New Teachers' Breakfast, and we are continuing this new tradition on both Thursday and Friday mornings at 9:00. If you are (or have a colleague who is) a new teacher of science (K - 12), please plan on attending. ShopAnatomical is again sponsoring these free events. You can expect some yummy food, science freebies, and a chance to find out what MSTA is doing in Montana.

### **Keynote Speaker**

Alan McCormack, president of the National Science Teachers Association, is our keynote speaker. A passionate educator, McCormack is a former district director and author of 70 journal articles, 12 science textbooks and 3 science handbooks. He has also served on many NSTA committees, most notably the Committee on Preservice Teacher Preparation and the *Science and Children* Advisory Board. An award-winning educator, McCormack has received the NSTA Distinguished Teaching Award, the NSTA Gustav Ohaus Award for Advancement of Science Education, and the NSTA-STAR Award. Dr. McCormack began his presidency on June 1, 2010. Dr. McCormack's keynote address is titled: *Imagine and Invent: Create a Great Future*. Expect discrepant events, imagineering Episodes, humor, hands-on inventiveness experiences, and the fun of learning science in innovative ways!

### **MSTA Annual Luncheon**

We are already gathering up armloads of science goodies for every attendee at the MSTA luncheon on Friday (all free!) and some incredible door prizes as well. Among the give-aways are two fifty dollar gift certificates from Carolina Biological, a skeleton from ShopAnatomical, several great books from Flinn, and more. Attend our annual MSTA luncheon at noon on Friday, receive the goody bag, eat a delicious lunch (free!) and get a chance to win some great door prizes! We will also be electing new representatives for several regional areas, as well as a new President-Elect. Please consider volunteering for one of these positions with MSTA. Of course, the best part of the MEA-MFT conference is the chance to network with science teachers across the state!

I hope your year is going wonderfully, and am looking forward to seeing you in Helena.

Shirley Greene [greenesh@gmail.com](mailto:greenesh@gmail.com)



# MSTA Information



**The URL for the MSTA webpage is**

**<http://montanascience.org>**

**If you have trouble with that address, try**

**<http://www.ivymerriot.com/montanascience/index.html>**

The page has many new listings and links, be sure to visit it often.

**MSTA E-blast Listserv**  
to sign up, visit the website and  
follow the E-blast link

Be sure to sign up for the  
MSTA E-blast

Educator's Conference  
Helena  
October 21, 22  
[http://mea-  
mft.org/educators\\_conference.aspx](http://mea-mft.org/educators_conference.aspx)

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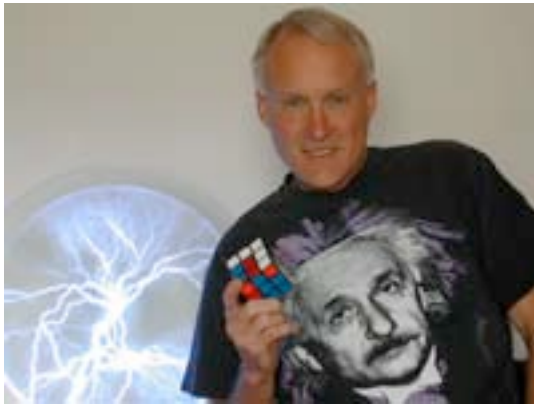


Brought to you by **ExxonMobil**

**Several science teachers (and a counselor) from Billings School District 2 were able to attend the Sally Ride Science Academy this summer in San Diego. Sally Ride, you might remember, was the first American women in space. She is graciously still very active in science education and along with sponsor Exxon Mobil, has created a program on 'Cool Careers in....**

**Biotechnology, Information Sciences, Math, Environmental sciences, Physics, and Engineering.' Six different books are available to middle and upper elementary teachers who complete a free eight hour training session. All of the Billings teachers are now certified 'trainers' of this program. Are you interested in free professional development? Where after just 8 hours you would receive 4 copies each of 6 Career books?**

**Contact Katy Lefler at [leflerk@billingssschools.org](mailto:leflerk@billingssschools.org) and between her schedule and any of the others, we will try to spread this great initiative all over Montana! You will like the content- well written, user friendly and very reflective of both genders, all races, etc.- these are real scientists doing active research all over the country and will inspire students!**



## MR. G SCIENCE

The "Mr G Science Show" made its appearance at Disney World on June 16, 2010. Well, actually it was at Disney's Coronado Springs Resort. Glenn Govertsen was asked by the Christopher Columbus Awards Program to present to the national finalist teams at Disney. This awards program is an annual competition for teams of middle school students who have to determine a community problem from their town and use science, engineering and math to solve the problem. The top 8 teams are given a week at the Disney Resort and Glenn was contracted to present the Mr G Show to these kids, chaperones and Columbus administrators and board members. He has already been asked to deliver the show again at Disney for the same program on June 22, 2011! The reception to the show was fantastic.

Interestingly the opportunity came because of the Mr G Science Show being presented to the two Great Falls middle schools in November of 2009. That involved 7 assemblies over two days so that each student at the schools had an opportunity to see the show. The Great Falls Tribune did an article about the show and that news article was picked up by a national wire service for education and the Christopher Columbus Awards people saw the story and contacted Mr G. The rest is history! Lots of fun with physics, you bet!

Glenn Govertsen  
2521 Gilbert Ave.  
Missoula, MT 59802  
govertg@aol.com

A promotional poster for "The Mr. G Laser Light Show". The title "The Mr. G Laser Light Show" is written in large, colorful letters (blue, red, and yellow). Below the title, it says "Teaching Kids that Science Rocks!". A smaller text block describes the show as "A show that combines the dynamics of music, lasers, raw eggs, fiber optics and other miscellaneous objects". The date and time are listed as "January 9th, 1:00 pm" at the "spectrUM Discovery Area", with a price of "\$3<sup>50</sup>/person • Free to Members". At the bottom, the "spectrUM" logo is shown with the tagline "science. try it." and contact information: "243-4828" and "http://spectrum.umn.edu/". A small photo of Glenn Govertsen holding a Rubik's cube is in the bottom right corner of the poster.

# Professional Development Opportunities for Teachers

## **MONTANA SPACE SCIENCE CONSORTIUM PRESENTS**

MSU project focused on strengthening science curriculum accepting applications from 4th-8th grade teachers.

"Turning Eyes to the Big Sky," a project focused on strengthening science curriculum in local public elementary and middle schools, is accepting applications through Sept. 27 from area 4th through 8th grade teachers who would like to participate.



The project will provide training, materials and credits from the Montana Office of Public Instruction for 15 area teachers on the subjects of general astronomy, light and optics. Materials and telescope kits will be awarded to up to 25 students per classroom. The project is expected to educate up to 375 students in southwestern Montana.

Selected teachers must currently be teaching in grades 4 through 8 in Amsterdam-Churchill, Belgrade, Big Sky, Big Timber, Bozeman, Butte, Cardwell, Four Corners, Gallatin Gateway, Livingston, Manhattan, Three Forks or Whitehall.

Selected teachers are expected to attend an all-day development workshop on Oct. 16 and a star-party event to be held in conjunction with MSU's annual Astronomy Day in April 2011. Selected teachers must also commit to teaching a specified optics curriculum during the 2010/2011 school year, in addition to other requirements.

"Turning Eyes to the Big Sky" is a project of Montana State University and the Montana Space Grant Consortium. Funding has been provided by SPIE, NASA and MSU's Department of Education and Optical Technology Center.


To apply or for more information, contact Ryan Hannahoe at 994-4223 or [ryan.hannahoe@msu.montana.edu](mailto:ryan.hannahoe@msu.montana.edu). Fax (406) 994-4452

## RESOURCES for Teachers & Students

Here are links to the lists of most recent winners for the Montana Science Olympiad and the Montana Science Bowl.

<http://www.montana.edu/wwwmtso/>  
November 2009 Science Olympiad

[http://www.wapa.gov/newsroom/NewsRelease/2010/022310\\_BigSkbowl\\_winner.html](http://www.wapa.gov/newsroom/NewsRelease/2010/022310_BigSkbowl_winner.html)  
2010 Montana Science Bowl Winners



Educator's Conference  
Helena  
October 21, 22  
[http://mea-  
mft.org/educators\\_conference.aspx](http://mea-mft.org/educators_conference.aspx)

**Flinn Scientific** offers free materials to teachers. Check it out <http://www.flinnsci.com/>



# Classroom Earth

A National Environmental Education Foundation Program

The oil spill in the Gulf of Mexico provides an opportunity to teach across disciplines and focus on a topic of current interest and extraordinary importance. Many educators are interested in teaching about the Gulf oil spill, but do not know where to begin. In this issue of the Classroom Earth Newsletter, we have compiled some useful [oil spill resources](#), some of which were created by programs here at the [National Environmental Education Foundation](#).

Remember, National Public Lands Day takes place on September 25. Go to [www.publiclandsday.org](http://www.publiclandsday.org) to learn more about how this opportunity can connect your students to the outdoors.

**NSTA PRESIDENT ALAN McCORMACK**  
Keynote Speaker at MSTA Conference  
October 21, 22 in Helena





PROJECT  
ARCHAEOLOGY  
Investigating Shelter



Online Professional

**What:** Online Educator Course  
**When:** Beginning October 4, 2010 for 8 weeks (4.5 self-directed hrs/week)  
**Where:** ONLINE  
**Who:** Upper elementary teachers (3<sup>rd</sup> - 6<sup>th</sup> grades)  
**Cost:** \$175.00; includes curriculum guide and 2 University credits

Join us for an exciting trip back in time to investigate archaeology! You will use this virtual workshop to practice the **basics of scientific inquiry** (observation, inference, evidence, and classification) using **authentic archaeological data**. You will learn first hand how to help your students apply archaeological concepts as they investigate a shelter using **primary data** sources such as maps, artifact illustrations, historic photographs and oral histories. Use this curriculum to fulfill many core requirements such as social studies, science, mathematics, language arts and art while your students are discovering archaeology and history through engaging **hands-on activities**. These activities promote citizenship, build personal ethics and character, and achieve deeper cultural understanding. This is a **'must-do'** course that will not only enhance your own understanding of archaeology, but also provide you with a comprehensive set of lessons that you can use in your own classroom!

Participating teachers will receive:

- Ⓢ Convenient online access to professional development for 2 University credits
- Ⓢ Inquiry based instruction and lessons.
- Ⓢ Full instruction in archaeological science for the classroom and a complete curriculum guide, *Project Archaeology: Investigating Shelter* and access to a database of regional shelter investigations; endorsed by the National Council for the Social Studies.
- Ⓢ Instructions for assembling your own classroom materials during the course.

### Interested?

Contact Madlyn Runburg  
801.671.7713  
[mruburg@umnh.utah.edu](mailto:mruburg@umnh.utah.edu)

by  
September 24, 2010

Course Sponsored by  
Montana State University • Utah Museum of Natural History • Smithsonian Institution

Be sure to sign up for the  
MSTA E-blast



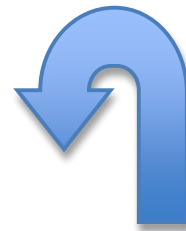
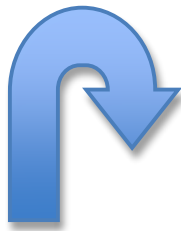
NATIONAL AERONAUTICS  
AND SPACE ADMINISTRATION



Partner Resources

The latest NASA Space Place column is now available. You can find both the article and its image on the "Partner Resources" web page at

<http://spaceplace.jpl.nasa.gov/partners/>



**MSTA Hospitality Room in Helena is in Helena  
High School Room 62**

**MSTA ANNUAL LUNCHEON, GENERAL  
MEETING AND AWARDS FRIDAY NOON IN  
HELENA**

WHY IS THE RHINOCEROS SO MUCH LARGER THAN THE BIRD?



**SCIENCE CARTOONS** available for classroom use. Send feedback sent to [dianneanderson@pointloma.edu](mailto:dianneanderson@pointloma.edu)

[http://www.pointloma.edu/Biology/Biology\\_Graduate\\_Program/Teaching\\_Resources\\_-\\_Cartoons.htm](http://www.pointloma.edu/Biology/Biology_Graduate_Program/Teaching_Resources_-_Cartoons.htm)

# Lesson Ideas

## Cookie Mining

Discussion Questions:

Why do we mine?

What do we use the materials for?

What are the costs involved?

How can we determine if it's worth the cost?

### Minerals Used or Usable in the Roof and Attic Materials

alumina compounds	asbestos
attapulgitic clay	barite
bentonite clay	colored rock granules
copper smelter slag	diatomaceous earth
feldspar	feldspathic sand
fluorite	garnet
graphite	kaolin
limestone	mica
mineral pigments	nepheline syenite
ores of aluminum	ores of copper
ores of iron	ores of nickel
ores of tin	ores of zinc
perlite	pumice
pyrophyllite	rock dust
silica sand	slag

### Mining Activity

- Describe the landform that you are mining
- Determine some way to quantify the original "ground"
- Determine some way to quantify what you've mined
- Some way to compare the amount of mined material with the ground around it
- Procedure, procedure, procedure!
- Good science skills
- Write a conclusion

The earth to be mined:

What you are mining  
for...



# Guess the Embryo

By Rachel VanCott | Posted 10.26.09 | NOVA

Any animal, be it a blue whale, butterfly, or human, starts out as a single, fertilized cell. Then the cell divides, differentiates, and ultimately develops into a full-fledged animal according to a special set of genetic instructions—a "toolkit" that tells the embryo how and where to develop limbs and organs. All animals on Earth use essentially the same toolkit, so embryos of different species can appear startlingly similar to one another. Here, try to match a series of embryos to their adult forms, and then watch each creature develop during a portion of its early growth.



LAUNCH INTERACTIVE

See if you can tell what four similar-looking embryos will become, and watch each develop.

▶ Credits

This middle school activity can be found at <http://www.pbs.org/wgbh/nova/evolution/guess-embryo.html>

High School Teachers  
Are you teaching the Nature of Science?

Science has limits...Science is a creative endeavor...Science is based on empirical research...

Check out these websites for more on the Nature of Science:

<http://evolution.berkeley.edu/evosite/nature/index.shtml>

<http://www.indiana.edu/~ensiweb/natsc.fs.html>

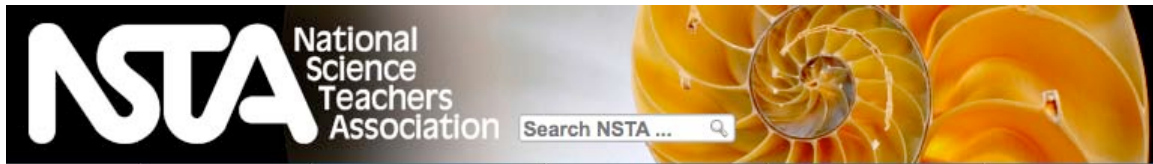
## Teacher Award Opportunities

For information on awards, visit [nsta.org](http://nsta.org)

### NSTA Awards

AWARD	WHO CAN APPLY	BRIEF DESCRIPTION
Robert H. Carleton Award–Dow	NSTA member	\$5000/citation/all expense paid trip
Ciba Middle/HS Teaching Awards	middle/high school science teachers	\$2000 prize/\$500 expenses
Ciba Middle/HS Principal Awards	middle/high school principals	\$2000 prize/\$500 expenses
DCAT Making a Difference Award	grades 6-12 science teachers	\$2500 prize to school/flight & 2 nights-principal and teacher
Delta Ed/Frey-Neo/CPO Science Award	preK-12 science teachers	\$1500 prize/\$500 expenses
Distinguished Informal Science Award	NSTA member	citation/3 nights hotel/\$500
Distinguished Service to Science Education Award	NSTA member	citation/3 nights hotel/\$500
Distinguished Teaching Award	NSTA member	citation/3 nights hotel/\$500
Faraday Science Communicator Award	not a science teacher/ but an individual or organization which promotes science	\$2500 expenses
Fellow Award	NSTA member	citation & pin
Legacy Award	NSTA member	\$500 expenses-family member/ 2 nights lodging
Maitland P. Simmons-Memorial Award for New Teachers	NSTA member	\$1000 expenses/certificate
Wendell G. Mohling Outstanding Aerospace Educator Award	K-12 science teachers	\$3000 prize/\$2000 expenses
SeaWorld/Busch Gardens Environmental Educator of the Year	K-12 science teachers	\$5000/all expense paid trip Deadline: November 28
Shell Oil Company	K-12 science teachers	\$10,000 prize/all expense paid trip/ finalists all expense paid trip
Sylvia Shugrue Award	elementary science teachers	\$1000 prize/\$500 expenses/citation
Vernier Technology Awards	K-12 science teachers	\$1000 prize/\$1000 products/\$1000 expenses
Zula International Awards	preK-2 science teachers with memberships in either NSTA, CESI, NAEYP, or NHSA	\$400 prize/\$1000 expenses

All award deadlines are November 30, except for Shell Oil Company which is October 15 and SeaWorld/Busch



Join NSTA and enjoy these benefits:

With more than 200 products and services available, membership in NSTA is one of the best professional development investments you can make. As an NSTA member, you will be part of a dynamic group of more than 55,000 dedicated science teachers, science supervisors, administrators, scientists, business and industry representatives, and others involved in and committed to science education and working toward the same goal—to promote excellence and innovations in science teaching and learning for all!

Go to  
[nsta.org](http://nsta.org)

# Nomination for MSTA Recognition Awards

If you know of a science teacher, university person, administrator or organization in Montana who deserves recognition for contributing to science education in Montana and beyond, please consider nominating them for an MSTA Award in one of the following areas:

Elementary	Earth Science	Chemistry
University member	Middle School Science	Biology
Distinguished Service	Physics	Administrator
Organization or Group		

Criteria for selection is based in part, but not limited to, the following: longevity or service, contribution to topic area, participation in MSTA and/or NSTA, presentation of workshops, improvement of fellow teachers and community service.

## Nomination Form

Name \_\_\_\_\_ Award Area \_\_\_\_\_

Address \_\_\_\_\_

Current Position \_\_\_\_\_

Name and address of the person making the nomination:

---

Email address: \_\_\_\_\_

Attach a 500 word or less statement of why you are making the nomination. This statement may include the nominee's resume, educational background, teaching positions, awards and honors, leadership positions and professional activities.

**Nominations may be emailed.**

Send to

**Shirley Greene**  
**3017 Montclair Dr**  
**Billings, MT 59102-4452**

# Mark Your Calendars

October 21-22: MSTA Fall Conference

Get the entire program on line here:

[http://www.mea-mft.org/educators\\_conference.aspx](http://www.mea-mft.org/educators_conference.aspx)



## MSTA Officers

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Past President	Alyson Mike	Helena	alyson.mike@gmail.com
BaP	Walt Woolbaugh	Manhattan	walter@montana.com

### MSTA Regions

