



Winter 2015

# STANYS Western Section



## STANYS CHAIRPERSONS CORNER

What has always stood out to me since I became a member of STANYS, was the magnitude of impact STANYS has on my science education career. From the enormous amount of quality professional development I have been exposed to through its membership, and the many terrific people at all levels in education throughout the state (and country) that I have networked with, it has truly been invaluable to me as a professional. With the General Conference in Rochester coming up next month, I am renewed with excitement about how my teaching can be further enhanced. So...Why aren't more of my WNY colleagues in science education a member of STANYS?

Due to the climate of education in our state, where it often seems the only consistency is that more changes are coming, many individuals are intimidated to become a part of professional communities. They're afraid of stretching themselves too far, or taking too much time away from what truly matters, like their students and individual families. Others cannot attend the statewide conference, so they decide membership isn't worth the effort. However, we all know that to be a good teacher, you need to hone your craft. Furthermore, a great teacher recognizes that the honing of your craft never really ends.

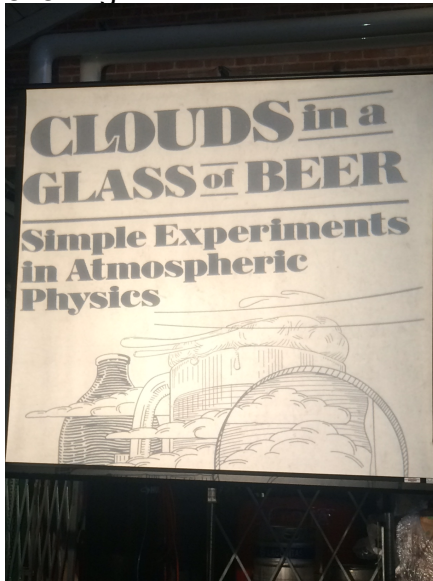
The Western Section of STANYS would like to extend an open invitation to you and your colleagues to come and join us. STANYS is the oldest organization of its kind in NYS, and more importantly is the most respected. Beer is one of the oldest known beverages produced by humans. Written records of beer production (and consumption) date back to more than 7000 years ago in the areas of Northern Africa and Middle East. As Western New York has begun to explode onto the craft beer scene, it is hard not to recognize the impact that it is having on the community. With local colleges even exploring fledging offerings in fermentation science in the next few years, we would be remiss to ignore the opportunity that this industry is having and will have on the region. To brew beer, it is required to have foresight on safety, a scientific mind for process, a mathematical proportion for product, and engineering mind for design, and an eye for artistic craft...full S.T.E.A.M. ahead?

With that said, I am excited to announce our Western Section "Pub Science" Speaker Events. We are partnering up with a local business to offer a fun opportunity for people to both "talk shop" and contribute to a professional and collaborative network. Our first Pub Science event, at Resurgence Brewing Company was a big hit! Professor Dan Maclsaac of Buffalo State College presented his own "Physics of Beer" and showed us a few tricks. Our next event is on December 3<sup>rd</sup> at Lockhouse Distillery. I hope this can serve as a non-traditional platform to bolster our membership and welcome so many terrific teachers in our great state to renew their love of science by becoming a part of STANYS. I look forward to seeing you, with your colleagues, family, and friends in tow, on December 3<sup>rd</sup> at 5 pm, for the first of what I hope will be many, science conscious-social gatherings!

Cheers,  
Tim Coughlin

## Pub Science

Our first Pub Science Event at Resurgence Brewing Company on Niagara Street in Buffalo was awesome! Professor Dan MacIsaac, the featured presenter, enlightened us all on what it takes to make a frothy glass of beer and the science behind it. From Kinking to Widget's, it was all explained (plus we learned a few tricks while we were at it!) The staff at Resurgence explained in depth the beer making process and there were plenty of samples for everyone! It was a great evening!



Professor Dan MacIsaac presenting "the Physics of Beer" at STANYS Pub Science Event, October 29, 2015

Please join us for our next Pub Science Event on December 3<sup>rd</sup> at Lockhouse Distillery!



## STANYS Western & Northwestern Sections Winter Social Event



### PUB SCIENCE

at

### Lockhouse Distillery

41 Columbia St, Buffalo, NY 14204  
(716) 768-4898



Enjoy an evening with Science Teachers from around WNY learning socializing, networking, and having a little bit of fun!

Thursday, December 3<sup>rd</sup>

5:00 PM - Close

Free and Open to the Public  
(Bring your colleagues!)

Guest Presentation

*The Science of Distillation &  
Making Buffalo's First  
Distilled Spirit since  
Prohibition*

by Cory Muscato  
Master Distiller for  
Lockhouse  
at 6:00 PM



**LOCKHOUSE**  
DISTILLERY  
BUFFALO, NY

## New York State P-12 Science Learning Standards (The New York Version of the NGSS)

Draft New York State P-12 Science Learning Standards for preview have been posted. Please visit <http://www.p12.nysed.gov/ciai/mst/sci/ngss.html> for more information about the draft standards and for links to the draft standards.

The Department encourages you to download the draft standards, review them and the associated resources included in the introduction, and discuss them at length with your colleagues. The Department anticipates posting a survey to collect feedback regarding the standards on December 2, 2015 and leaving the survey open for approximately two months.



<http://wnystem.org/>

### ***Student Spaceflight Proposal Winners Announced***

Three winning experiment proposals were announced Thursday, November 19<sup>th</sup>, 2015, following a presentation at the Niagara Aerospace Museum by the Pluto Mission Director Alice Bowman. One proposal will be selected by the NCESSSE by December 17 to be launched to the International Space Station!

See the news coverage at <http://www.wgrz.com/story/news/local/niagara-county/2015/11/19/local-finalists-named-for-space-station-competition/76082756/>

### ***Top Three Proposals Submitted:***

#### ***Tuber Growth in Microgravity***

Hamlin Park, Buffalo Public School #74

#### ***The Effect of a Microgravity Environment on the Rate of Breast Cancer Cell Growth***

Global Concepts Charter High School

#### ***The Battle of Antibiotics vs Bacteria in Microgravity***

Harry Abate Elementary School, Niagara Falls

**Click on the link to see what is available!**

### **[2016 Summer Internship Opportunities at Roswell Park](#)**

Summer Internship Applications are now open at Roswell Park for High School and Undergraduate Juniors and current first year medical/PA/dental students. Work with internationally known scientists and oncologists at one of the world's first comprehensive cancer centers...



Alice Bowman, the Mission Operations Manager for New Horizons Project to Pluto with Sandra George at the Niagara Aerospace Museum.

## Subject Area Representative – SAR News

### CHEMISTRY – SARAH ENGLISH



**Reinvigorate Your Content!  
Check out AACT!!**



With the school year well underway, you may feel the compulsion to revise how you teach long standing chemistry concepts. Before you start sifting through hundreds of different websites on the best method to teach the structure of the atom, consider checking out the website of the American Association of Chemistry Teachers. The AACT website ([www.teachchemistry.org](http://www.teachchemistry.org)) offers an amazing assortment of resources to peruse. Without a doubt, this site provides a wide variety of innovative and exciting ideas to integrate into your classroom.

AACT is a relatively new organization that just recently concluded its first year of existence. In 2009, the American Chemical Society decided that there was a need for an organization designated to support K-12 chemistry educators. The organization now includes an advisory board composed of practicing chemistry teachers, professors, industry experts and guidance from the American Chemical Society.

To get a taste of what this site has to offer consider the classroom resources section. This area is split into three groups – high school, middle school and elementary. Within each group, specific chemistry topics are listed. Within a topic demos, labs, activities, projects, unit plans and simulations are offered providing you with an immense amount content from which to choose.

My favorite part of the website is the access to webinars. A number of webinars are offered a month and all previous webinars are archived. This is an incredible opportunity to learn from other educators and professionals in the field!

To have access to all the cool aspects of this website you do need to become a member. The membership fee is \$50 for educators but this does include a subscription to the ACS magazine ChemMatters and the on-line periodical, Chemistry Solutions, which focuses on everyday topics and teaching chemistry in the K-12 classroom.

So while it might be tempting to search through all 1,519,000 search results for “Chemical bonding high school chemistry”, consider checking out the free resources at [www.teachchemisry.org](http://www.teachchemisry.org) first.



***EARTH SCIENCE – MEG HELMES***



Hello Western STANYS members and friends! My name is Meg Helmes and I am proud to serve as your Earth Science Subject Area Representative, as well as Vice-Chair for our section. I started out, I admit, as a biologist! I have a B.A. in Psychology, minor in Biology from Hiram College, and pursued a MS in Animal Learning & Behavior at Kansas State University. I taught several undergraduate courses while at Kansas State, and got hooked on helping others learn. After returning to Western NY, I taught Zoo Science classes at Buffalo Public #59. I then pursued my teaching certification in Biology and Earth Science, and later completed my Masters in Physics Education at SUNY Buffalo State. After teaching for 5 years at WNY Maritime Charter School, I am now teaching earth science and physics at Lancaster High School, as well as instructing physics courses for teachers in the summer, and Science Literacy courses for pre-service teachers at SUNY Buffalo State.

Two years ago, I was honored to join the first cohort of NYS Science Master Teachers, and am so thankful for the continued opportunities to expand the good word about STANYS! I am also member of NYESTA/NESTA, NSTA, AAPT and AMTA (Whew! That is a lot of acronyms!).

<http://www.juliantrubin.com/earthsciencesjokes.html>

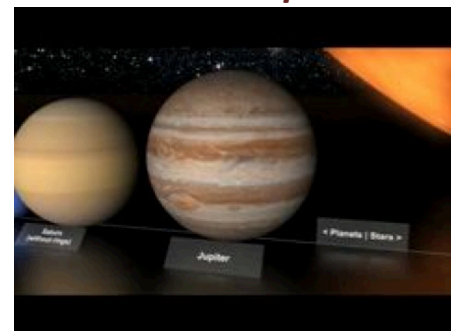
***Check this video on YouTube out!***

**Q: Why did the dinosaur cross the road?**



**A: Because the chicken wasn't invented yet.**

***Star Size Comparison***



***<https://www.youtube.com/watch?v=zWpZ1gIEHhY>***

**INTERMEDIATE – SUSAN CYRULIK**

My name is Susan Cyrulik and I have accepted the position of SAR for the intermediate level. I actively taught in two middle school settings for a total of six year's time before accepting my current position with Erie 1 BOCES, as a Professional Development Coordinator. The past three years in this position have flown by, but they have also provided great insight into the many professional development opportunities open to teachers in the area.

You can expect that I will pass along both science and STEM opportunities for training as I discover them. For instance, the Microsoft store and the Walden Galleria Mall offers both Educator and student workshops. They are free to those who attend, you just need to register. For more information visit, [microsoftstore.com/waldengalleria](http://microsoftstore.com/waldengalleria), scroll down to the event section, filter to find a class, and register. I hope that you will consider attending.

**PHYSICS – DAN MACISAAC****Opportunities in Physics****Buffalo State College**

Each summer, approximately 90 science teachers attend the unique Summer Physics Academy at Buffalo State. This program is ideal for those who teach full time during the school year. Participants earn 6 credit hours per course by taking these workshop classes during the summer. For more information go to: [www.buffalostate.edu/physics/](http://www.buffalostate.edu/physics/) or contact Dr. Dan MacIsaac at (716) 878-6726.

***Save the DATE  
2015-2016***

***PHYSICS OLYMPICS  
March 5, 2016***

**WNYPTA –**

The WNY Physics Teacher Alliance (WNYPTA) is an active group of people interested in physics teaching in the Western New York region including elementary, middle school, high school, community college and undergraduate and graduate university physics teachers, teachers-to-be and retired teachers. They meet monthly during the school year to share ideas, discuss concerns and find ways to further our own professional development. Usually meeting from 9:00 am-noon Saturdays in the Science Building on the campus of Buffalo State College. Letters of attendance for three hours at a professional development event are issued each meeting. Upcoming meetings are on Dec 5th & Jan 16th. Please contact Dan MacIsaac if you would like to be included on the WNYPTA e-mail list at: [macisadl@buffalostate.edu](mailto:macisadl@buffalostate.edu).

**Department of Physics**

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- NYSED Physics cert. courses, programs & advising
- Summer, online and evening courses
- MEd Cross certification adding physics for certified non-physics STEM teachers
- MEd Alternative certification in physics for technical professionals becoming teachers
- NSF Noyce Scholarships, financial support & advice
- Western NY Physics Teacher's Alliance

## Physics teacher use iPads to make physics learning videos at Buffalo State

By Andrew Roberts and Dan Maclsaac, Buffalo State Physics

Two graduate physics courses were offered for physics teachers in summer 2015 at Buffalo State College: PHY 510- Physics for High School Teachers: Content and Pedagogy, and PHY 622- Powerful Ideas and Quantitative Modeling: Electricity and Magnetism. Both courses included an iPad video project where participants produced a multimedia physics content video.

As current and future teachers, participants were expected to learn new physics content and gain skills in filming and editing video from the assignment, just as introductory physics students would. Working in groups, participants created four to six minute videos geared towards a target audience of their choosing, such as a Regents Physics class. Once the audience was characterized, the groups familiarized themselves with the physics concepts and educational standards relating to their topics. Video storyboards consisting of a plot, general script, plan of what and where to film, and the identification of all necessary materials were prepared. The next step was recording video using the iPads, which included standard video/photo capture, motion tracking with Vernier Video Physics, and stop-motion video capture using the iMotion app. If you have ever seen a Minute Physics video on YouTube, you are already familiar with what is called a scribble- a narrated, stop-motion video of hand-drawn diagrams, illustrations, and equations used to explain a concept. The final stage was to edit together together the footage of interviews, scripted scenes, scribbles, photos, and raw video with audio voiceover and music using the Apple iMovie app on the iPads. In iMovie, groups adjusted speed and timing of their videos and added sound effects, background music, captions, and transitions to create a final product.

The purpose of these video projects was not to produce outstanding videos but rather for participants to learn physics by actively making sense of challenging physics and figuring out how to communicate this physics. One of the most common lessons learned was that the creation of the videos was a very lengthy undertaking. There is no question that student learning takes place throughout planning and storyboarding, but filming, editing, and technical issues can command even more time than discussion of physics content. Nevertheless, most participants responded favorably to implementing this type of project in their own classrooms. They were impressed with the learning the project engendered, the engagement it would instill in students, and the availability of the technology. One participant statement summed this up: "It helps students learn content at a deeper level, it involves students who don't engage as much, and encourages teamwork and cooperation from people who don't usually choose to cooperate."

An example physics video produced this summer can be found on YouTube, named "Cartesian Diver Construction and Explanation." Other videos created by the 2015 PHY 622 students are available on Dan Maclsaac's YouTube channel. A cogent discussion of the limitations of videos for learning physics is presented by Verisaium's Derek Muller on YouTube titled "Khan Academy and the Effectiveness of Science Videos."

In collaboration with the University of Cologne, SUNY Buffalo State College physics has undertaken a project to explore teacher and student use of iPads for video physics learning. For more information, contact Dan Maclsaac, Associate Professor of Physics <macisadl@buffalostate.edu>.



*Modern science has been a voyage  
into the unknown, with a lesson in  
humility waiting at every stop....*  
**Carl Sagan**

### **Western New York to host State Science Fair in 2016**

Western Section STANYS and the Western New York Science Congress, Inc. will host the STANYS NYS Science Congress for the next three years. Students from across the state who have won local science fairs are eligible to compete. This is an exciting opportunity for Western New York to showcase the area while promoting such places as the Buffalo Medical corridor with its STEM initiatives, advanced research facilities like the Gates Vascular and Hauptman-Woodward Medical Research Institutes as well as renowned colleges and universities.

In the photo below are the three Western New York participants who competed on May 30, 2015 at the Brookhaven National Laboratory on Long Island. (PHOTO) From left to right is Ramzi Talhouk, from Buffalo City Honors, Gretchen Wittmeyer, from St Aloysius Regional School, Rex Herzberg, from Buffalo City Honors, and John Paul Martin, Executive Director of The WNY Science and Engineering Fair.

Ramzi Talhouk earned 3<sup>rd</sup> place (Honors) in Biological Science in the Senior Division while Gretchen Wittmeyer received 2<sup>nd</sup> place (High Honors) in Biological Science in the Intermediate Division.

Next year's fair will take place at The University of Buffalo on June 4, 2016. Please consider registering your students in the local science fair to become eligible for this event. For information regarding the state fair or to learn more about this year's winners and results contact Susan Sullivan at [sully.sm@verizon.net](mailto:sully.sm@verizon.net).







## New York State Science Standards

### Incorporate Common Core to Provide a Student Based Teaching Activity

You'll see students creating graphs, analyzing data, integrating writing skills, designing procedures, developing techniques and most importantly presenting their own ideas. They will also be problem solving and incorporating the scientific method. Have you guessed how to accomplish all of these goals?

Simply enter your students in the Western New York Science and Engineering Fair (WNYRSEF). It will be held on Saturday, April 30, 2016 at Cheektowaga Central High School, 3600 Union Road, Cheektowaga, NY 14225

The WNYRSEF event is open to all students grades 5-12 in all 8 counties of Western New York. Parents, teachers, or guardians can sponsor students. For more information regarding registration visit our website at: [www.wnysef.org](http://www.wnysef.org)

**CHECK THIS out from NATIONAL GEOGRAPHIC!**

### THE LARGEST PICTURE EVER TAKEN

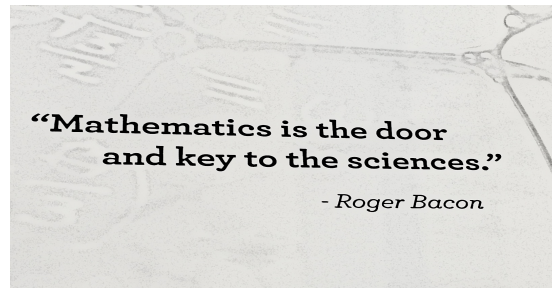
<http://voices.nationalgeographic.com/2015/01/24/have-you-seen-the-largest-picture-ever-taken/>

### MYSTERY PICTURE:

Have you seen the quote below ?

Email

[sgeorge.STANYS@gmail.com](mailto:sgeorge.STANYS@gmail.com)  
and tell me where this can be found in WNY



### Website Makeover!

We are getting a new look to our website with added features and information. We will let you know when it's ready for unveiling!

If you would like to be this committee or would like to be involved making things happen in WNY...please contact Tim Coughlin at [tcoughlin@lancasterschools.org](mailto:tcoughlin@lancasterschools.org)

### STANYS Western Section Board Members

<b>Chairperson</b> – Timothy Coughlin	<b>Biology SAR</b> –
<b>Vice Chair</b> – Meg Helmes	<b>Chemistry SAR</b> – Sarah English
<b>Secretary</b> – Susan Sullivan	<b>Colleges SAR</b> – Dave Henry
<b>Treasurer</b> – Karen Lester	<b>Earth Science SAR</b> – Meg Helmes
<b>Science Congress</b> – Susan Sullivan	<b>Elementary SAR</b> –
<b>Directors</b> – Jeff Arnold & Tim Coughlin	<b>Environmental SAR</b> – Helen Domske
<b>Membership</b> – Joe Cozzarin	<b>Intermediate SAR</b> – Susan Cyrulik
<b>At-Large</b> – Rose Cianciosa & Lowell Sylwester	<b>Physics SAR</b> – Dan MacIsaac
<b>Newsletter</b> – Sandra George	<b>Retired SAR</b> – Dr. Rod Doran
<b>Website</b> – Meg Helmes	<b>Special Ed SAR</b> – Marvann Roll