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Subject: [seps-aapt] SEPS AAPT NEWS Jan 24 2014
Date: January 24, 2014 at 1:32:55 PM EST
To: "Takats, Martha" <mtakats -at- ursinus.edu>

Hi everyone! I hope some of you managed to register for the great workshops we're running at LaSalle in the next few months. I'm signed up for the electricity & magnetism one that Bill Berner & Barry Feierman are running tomorrow morning -- I got one of the last three slots before it sold out -- and I hope to see some of you there! (If you are signed up, you probably already have a reminder email about it, but the address is La Salle University, Holroyd Hall 053, 1900 West Olney Ave., Philadelphia, PA 19141, and there will be registration/food before the workshop starts at 9.)

We're continuing to work on pulling together the agenda and registration packet for our Spring Meeting at Villanova University, which will take place Friday, March 21, and Saturday, March 22. The theme is "Physics of the Future", and we've got some exciting speakers lined up -- astronomer Ed Guinan, of Villanova will be our Saturday Night speaker, and plasma physicist Michael Brown of Swarthmore will speak on Saturday. Watch this space for updates and registration information as we finalize our plans -- we hope to get a registration form out in the next newsletter!

There's a whole bunch more stuff going on -- read on for details!

Here's the list of the remaining contents of this newsletter:

1. Job opening for physics teacher at St Andrew's School in Delaware
2. Registration now open for Modeling Workshops around the country
3. Physics Workshops at LaSalle University (registration is closed, workshops are 1/25, 2/22, 4/5)
4. Save the date for NJAAPT's Spring Section Meeting at Princeton (3/14-3/15)
5. Save the date for SEPS AAPT's spring meeting at Villanova (3/21-3/22)
6. Free Physics lecture: "The Jazz of Physics" at St Andrew's School (1/31)
7. 120 copies of Paul Zitzewitz's Physics Principles & Problems available for free
8. 2014 Pennsylvania Kidwind Challenge now open for registration (event date 3/1)
9. Opening for Intro Physics Instructor at Penn State Abington
10. Opening for Lecturer at Penn State Harrisburg

11. Princeton Plasma Camp (application deadline 3/28, camp runs 7/14-7/18)
12. Penn Outreach Lectures at LRSM (next lecture 2/20)
13. LRSM Science Cafes at World Cafe Live and Stoney's British Pub (next science cafes 2/10 and 3/2 in Wilmington, 2/12 and 3/5 in Philadelphia)
14. American Helicopter Museum & Education Center seeks educators for Advisory Board
15. DuPont Challenge Science Essay Competition (deadline 1/31)
16. Kohelet Yeshiva High School seeks part-time math teacher
17. Free Science Saturday open lectures at Princeton's Plasma Physics Lab (next lectures Feb 1, Feb 8, Feb 15)
18. Princeton hosts 13th annual Young Women's Conference in STEM
19. Free field trips and professional development workshops at the NASTAR Center
20. NASA Exploration Design Challenge (deadline 3/14/14)
21. Cool physics links: Stephen Hughes' Physics games, Dan Burns' Science on Simpsons, Zaption interactive video maker
22. SEPS AAPT Online

Please continue to let me know about any exciting events, professional development opportunities, or resources you come across that you'd like to share with the rest of the Southeastern PA Section! I'm especially interested in getting more resources that will be useful to college faculty, since most of the mailing lists I am personally on pertain to my own grade level, and I'd like this list to be useful for everybody on it.

And as always, please let me know by email ([jwaldman -at- archmereacademy.com](mailto:jwaldman-at-archmereacademy.com)) if you would like me to change your subscription, or if you have friends or colleagues who would like to be added.

Best,

Jillian Waldman
Secretary, SEPS AAPT
Science Teacher
Archmere Academy
Claymont, DE 19703

1. JOB OPENING FOR PHYSICS TEACHER AT ST. ANDREW'S SCHOOL IN DELAWARE

St. Andrew's school, a co-ed boarding school of 300 in Delaware, is looking for a full-time physics teacher for the 2014-15 school year. We are a 100% boarding school with a deep commitment to financial aid (nearly half the student body is on aid and the average grant is \$38,000). We offer introductory and honors physics, both of which follow a modified modeling curriculum, as well as a 2nd year physics course taught from the Matter and Interactions text. A typical class load is 3 or 4 sections of 12-15 students.

You can find more information about this position and the school at John Burk's blog: <http://quantumprogress.wordpress.com/2013/11/26/looking-for-a-physics-teacher/>

and Mark Hammond's blog: <http://physicsparsimony.wordpress.com/2013/12/03/job-opening-at-st-andrews-whats-it-like-to-work-here/>

You can find the job posting here: <http://www.standrews-de.org/aboutus/employment-opportunities/available-positions/index.aspx>

2. REGISTRATION NOW OPEN FOR MODELING WORKSHOPS AROUND THE COUNTRY

The American Modeling Teachers Association (AMTA) is sponsoring a number of workshops this summer for Biology, Chemistry and Physics teachers interesting in learning more about Modeling Instruction. Modeling is an instructional approach that has been in development since 1990 (under the leadership of [David Hestenes](#), Emeritus Professor of Physics, Arizona State University), and is designed to correct many weaknesses of the traditional lecture-demonstration method, including fragmentation of knowledge, student passivity, and persistence of naive beliefs about the physical world. Modeling Instruction organizes the course around a small number of scientific models, and focuses on applying structured inquiry techniques to the teaching of basic skills and practices in mathematical modeling, proportional reasoning, quantitative estimation and technology-enabled data collection and analysis.

A full listing of Summer 2014 workshops can be found at: <http://modelinginstruction.org/teachers/workshops-2014/>

The AMTA website also contains other information pertaining to modeling instruction.

The Physics Teachers group in NYC (only 2 hours away, if traffic is your friend) is running a couple of particularly cool-sounding workshops at Columbia Teachers College, which are filling up quickly:

1. High School Chemistry (introductory level), led by Donghong Sun and Tammy

Gwara.

2. Physics – Mechanics (introductory level), led by Paul Bianchi and Seth Guinals-Kupperman.

3. Physics - Models of Light (advanced level, requires one previous introductory level Modeling Instruction Workshop), led by Mark Schober and Kofi Donnelly.

All three workshops run simultaneously, July 21 – Aug. 8, 2014 (3 weeks, Monday through Friday) at Columbia Teachers College, 525 West 120th St., NY, NY.

Sign up for the workshop of your choice at:

stemnycsummer14.eventbrite.com.

\$50 registration fee; \$449 balance will be due later in spring.

Who Should Attend: Middle, high school, and university teachers, and prospective teachers, of physics, chemistry or physical science. Teachers of biology, other sciences, math, technology and engineering also may find these workshops useful. At least one year-long, algebra and trigonometry-based, college-level course in the subject matter of the workshop is strongly recommended. The chemistry and mechanics workshops are for teachers who have not previously taken a 3-week workshop on Modeling Instruction. Teachers who register for the Models of Light workshop are expected to have previously completed at least one 3-week workshop on Modeling Instruction at the introductory level.

Cost: \$499 (for one 3-week workshop), including 1-year membership in the American Modeling Teachers Association. \$50 deposit is required to reserve space; balance will be due later in spring. Each workshop is limited to 24 participants. Certificates are available. Graduate credit at SUNY Empire State College will very likely be available.

Detailed Description: In all workshops, the instructors teach by example, guiding participants through a series of well-defined scientific models using a detailed course manual including classroom-tested, teacher-developed labs, activities, discussions, worksheets, and assessments. An explicit modeling learning cycle is used. References describing Modeling Instruction and documenting its effectiveness are available at <http://modeling.asu.edu/R&E/Research.html> and at <http://tinyurl.com/modelingarticle> >.

All three workshops will follow outlines and use the course manuals developed by the American Modeling Teachers Association and its predecessor, the Modeling Instruction Program, over the past 20 years.

1. High School Chemistry. This workshop is intended for teachers who have not previously taken a workshop in Modeling Instruction. The workshop immerses

teachers in Modeling Instruction so that participants develop the skills necessary to implement this student-centered, research-informed, standards-based curricular approach with their students. The instructors guide participants through the core units of a high school chemistry course as they would with high school students. In teacher mode, the pedagogical rationale for all aspects of the example instruction is explored as well as accommodating various student populations, class schedules, testing requirements, and laboratory resources. Through readings and discussion, the workshop also delves into cognitive research, pedagogical content knowledge, and the theoretical underpinnings of Models and Modeling that are essential to understanding Modeling Instruction as both a teaching practice and philosophy.

Specific topics of study include: particulate structure of matter, energy and kinetic molecular theory, stoichiometry, and energy and chemical change.

2. Physics (Mechanics). This workshop is intended for teachers who have not previously taken a workshop in Modeling Instruction. Eight explicit models, as detailed in the mechanics modeling course manual, are studied in “student mode”: constant velocity model, uniform acceleration model, free particle (balanced force) model, unbalanced (net) force model, projectile motion model, circular motion model, conservation of momentum model, conservation of energy model. In “teacher mode,” the pedagogical rationales for all aspects of the example instruction are explored, as well as accommodating various student populations, class schedules, testing requirements, and laboratory resources. Through readings and discussion, the workshop delves into cognitive research, pedagogical content knowledge, and the theoretical underpinnings of Models and Modeling so as to develop an understanding of Modeling Instruction as both a teaching practice and philosophy.

3. Models of Light. This workshop is intended for teachers who have previously taken a workshop in Modeling Instruction (usually the mechanics or chemistry workshops). As a result, there is less emphasis here on the details, advantages, and practice of modeling instruction, since we assume that teachers are already familiar with the approach and have used it to some extent in their classrooms. Additional details about the content and approach of this workshop will be posted soon.

3. FREE PHYSICS WORKSHOPS AT LASALLE UNIVERSITY IN SPRING 2014

Registration has now closed for the three free Physics Workshops at LaSalle, co-sponsored by SEPS AAPT, LaSalle's Graduate Programs in Education, the Philadelphia Education Fund, and the Philadelphia Regional Noyce Partnership. For those who are registered, here's a quick summary of the information, with more details in the attached flyer.

All sessions:

Saturdays from 9 am – noon

La Salle University

Holroyd Hall 053
1900 West Olney Ave., Philadelphia, PA 19141

Workshop #1: Teaching Electricity & Magnetism: An Inquiry Approach
Saturday, January 25, 2014

Presenters: Barry Feierman & Bill Berner

<https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-university-teaching-electricity-magnetism-an-inquiry-tickets-9778994235>

Workshop #2: Teaching Waves, Sound, & Light: An Inquiry Approach
Saturday, February 22, 2014

Presenters: Bob Schwartz & Jay Bagley

<https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-university-teaching-wave-sound-light-an-inquiry-approach-tickets-9815138343>

(Attendees should bring a smart phone and/or a tablet, either Apple or Android. Android tablet users should download the free app 'Oscilloscope' (UberApp). Apple iPad users should download 'E-scope 3-in-1' (e-skett Corp.) which costs \$1.99.)

Workshop #3: Use of Data Collection Technological Tools, Probeware, and Video Analysis in Teaching Physics

Saturday, April 5, 2014

Presenters: Bob Schwartz, Jay Bagley, Bill Berner, and Barry Feierman

<https://www.eventbrite.com/e/free-physics-workshop-series-at-la-salle-use-of-data-collection-technological-tools-probeware-and-tickets-9815314871>

(Though not a requirement, if attendees have an Apple iPad, they should download Video Physics (Vernier) and Graphical Analysis (Vernier) from the AppStore. Each costs \$1.99. If attendees do not have an iPad, another device capable of filming video, such as a smartphone or tablet, is highly recommended.)

For more information, see the attached flyer or contact

Greer Richardson, Ph. D

Director of Graduate Programs in Education

La Salle University

215-951-1806

richards-at-lasalle.edu

4. SAVE THE DATE FOR NJAAPT'S SPRING SECTION MEETING

The annual NJAAPT Spring Sectional Meeting will be held at Princeton University Friday and Saturday, March 14 & 15. Please check their website (<http://www.njaapt.org/>) for updates on the meeting and to find registration materials as these will be posted shortly.

You may register for one or both days and there is a savings for the two-day

attendance. Friday will include a wine and cheese reception, buffet dinner, and a talk entitled: "A Ray of Light in a Sea of Dark Matter" by Charles Keeton of Rutgers University.

Saturday will include registration, breakfast, and lunch. Wil van der Veen, the Program Director of the NJ Astronomy Center for Education, will address the Next Generation Science Standards discussing all the sciences. This would provide a rare opportunity for you to invite other members of your department to hear about the new standards. Revisions in the AP Physics B course will be discussed by Patty Zober, a Pennsylvania high school physics teacher and leader of workshops related to the changes. There will also be breakout sessions to discuss these topics and another to answer as many questions as possible on the subjects. The meeting will conclude with a demonstration show conducted by the Princeton University staff.

5. SAVE THE DATE FOR SEPS AAPT'S SPRING MEETING, MARCH 21-22

We are continuing to work on putting together a schedule and agenda for SEPS' Spring Meeting at Villanova University. Our theme is "Physics of the Future", and we have lined up most of our speakers and workshops leaders -- we just need to finalize our budget, and we will be able to get registration forms out to you. The meeting will be held March 21-22, with Jeremy Carlo coordinating. Watch this space for updates as we finalize our plans. (And if you have any good suggestions, let us know! You can email me at jwaldman@archmereacademy.com, or our President, Paula Miller, at pjmiller4@comcast.net.)

6. PHYSICS LECTURE: THE JAZZ OF PHYSICS AT ST ANDREW'S SCHOOL NEXT FRIDAY

St. Andrew's School Presents
The 15th Annual William A. Crump '44 Physics Lecture
The Jazz of Physics
Dr. Stephon Alexander
Friday • January 31, 2014 • 8:30 pm
Engelhard Hall, O'Brien Arts Center

Stephon Alexander is a theoretical physicist whose research explores the interface of cosmology, particle physics and quantum gravity. Dr. Alexander received his BSc from Haverford College and PhD from Brown University. He has held postdoctoral fellowships at Imperial College, London and The Stanford Linear Accelerator Center and is currently the Ernest Everett Just 1907 Professor of Natural Sciences at Dartmouth College.

Link to poster: <http://bit.ly/1mGigtD>

This lecture is free and open to the public. Please email john.burk98 -at-

[gmail.com](#) to RSVP.

7. 120 COPIES OF PAUL ZITZEWITZ'S PHYSICS PRINCIPLES & PROBLEMS AVAILABLE FOR FREE

Marple Newtown HS is looking to give away the following physics textbooks: 120 copies of Physics Principles and Problems © 2009 edition (texts are generally in very good shape) by Zitzewitz, et. al. (Glencoe). We also have the associated teacher materials. The online text subscription is not included. Any school wanting the books must make arrangements to pick them up in person- we cannot ship, box or package the books. Contact Dennis Andrews, Science Department Leader at [dandrews -at- mnsd.org](mailto:dandrews-at-mnsd.org) .

8. 2014 PENNSYLVANIA KIDWIND CHALLENGE NOW OPEN FOR REGISTRATION

Event date: March 1, 2014

Location: Mt. Nittany Middle School, State College, PA

Audience: 4 – 12th grade teams

Prizes for winning teams AND the winning teams are eligible to attend the National Kidwind Challenge in DC!

For more information: <http://csats.psu.edu/projects/currentprojects/kidwindchallenge-archive.cfm>

The KidWind Challenge is a student-oriented wind turbine design contest. Over a period of a few months, students spend time designing and constructing their own wind turbines with the goal of creating a device that is efficient, elegant and highly functional. There are 2 divisions of the competition: 4th – 8th grade and 9th – 12th grade. Form a team and sign up! Scholarships are available for teams, contact Leah Bug at [leahbug -at- psu.edu](mailto:leahbug-at-psu.edu) for details.

Any group of students who are of middle or high school age are eligible to enter a team in the KidWind Challenge. This includes students from public and private schools, home schoolers, after school clubs, boy and girl scout troops, 4-H clubs, etc. Each team must have a chaperone. Cash prizes for winning teams and a chance to attend the 2014 National Kidwind Challenge in DC, held at the USA Science and Engineering Festival April 26 & 27, 2014.

During the challenge, there will be activities for team members to join in and have fun! Not only will there be hands-on activities, but a tour of the school's wind turbine will be offered. For more information, rules, and registration, visit the web site listed above. For additional information not found on the web site, contact Leah Bug at [leahbug -at- psu.edu](mailto:leahbug-at-psu.edu).

Please share this information with individuals who may be interested in participating!

9. OPENING FOR INTRO PHYSICS INSTRUCTOR AT PENN STATE

ABINGTON

Penn State Abington seeks part-time Physics Instructors (non-tenure track) for the spring semester beginning January 2014. The successful candidate will teach an introductory calculus based or algebra physics course at the university level.

Earned doctorate in physics or a related field preferred. Preference will be given to candidates with demonstrated excellence in teaching physics at the college level. The review process will begin immediately and continue until the position is filled. Employment will require successful completion of background check(s) in accordance with University policies. Applicants should submit an electronic dossier (no paper submissions please) including: 1) a cover letter; 2) a curriculum vitae; 3) a list of courses taught at the college level; 4) a statement of teaching philosophy to:

Dr. Ann Schmiedekamp
Division of Science and Engineering
Penn State Abington
Abington, PA 19001
[ams -at- psu.edu](mailto:ams-at-psu.edu)

Penn State Abington is a four-year undergraduate college of Penn State University located two blocks from Route 611 in Abington, Pennsylvania, and 10 miles north of Center City Philadelphia. Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

10. OPENING FOR LECTURER AT PENN STATE HARRISBURG

Penn State Harrisburg, School of Science, Engineering and Technology invites applications for the full-time, non-tenure track position, Lecturer/Senior Lecturer in Physics, effective Fall semester 2014. The successful candidate is expected to teach a broad range of undergraduate courses/labs in Physics, Astronomy, and/or Earth Science. In addition, all full-time faculty are expected to engage in scholarly activities, participate in University/College and professional service, assist with ABET accreditation processes, and advise undergraduate students. The minimum qualification is a Ph.D. in Physics or a closely related discipline plus relevant experience. Preference will be given to individuals who have demonstrated commitment to excellence in college teaching. Information about the College can be found at www.hbg.psu.edu.

This is a fixed-term appointment with excellent opportunity for re-funding. Applicants should submit a cover letter, curriculum vitae, three letters of reference, and a personal statement of teaching philosophy to Lecturer/Senior Lecturer in Physics Search Committee, c/o Mrs. Dorothy J. Guy, Director of Human Resources, Penn State Harrisburg, Box: AAPT-41003, 777 W. Harrisburg Pike, Middletown, PA 17057-4898 or via e-mail at [HBG-HR -at- LISTS.PSU.EDU](mailto:HBG-HR-at-LISTS.PSU.EDU). Review of applications will begin on November 25, 2013, and

will continue until the position is filled. Employment will require successful completion of background check(s) in accordance with University policies. Penn State is committed to affirmative action, equal opportunity, and diversity of its workforce.

A flyer suitable for posting in your department is attached.

11. PRINCETON PLASMA CAMP

The Plasma Science and Fusion Energy Institute (Plasma Camp) is a one-week intensive workshop designed to provide the opportunity to study plasma physics and fusion energy through experimental research in our state-of-the-art laboratories. Participants will perform experiments, in collaboration with laboratory scientists, that investigate the basic properties of plasmas. Finally, plasmas are ideal to illustrate many concepts in high school physics curricula including waves, atoms, nuclear reactions, relativity, electricity and magnetism. An integral part of the Institute will be the development of new plasma-based lesson plans, student-led investigations and demonstrations.

All participants will receive equipment similar to what is used during the workshop to take back to their classroom. In addition, up to \$2,000 is available through a mini-grant to purchase additional equipment after completion of the workshop. The 201 Plasma Camp program will run from July 14-18. The deadline to apply is 5 PM on Friday, March 28.

To find out more about Plasma Camp, check out the following website or contact Deedee Ortiz at dortiz -at- pppl.gov.

<http://www.pppl.gov/education/science-education/programs/plasma-camp>

12. PENN OUTREACH LECTURES AT THE LAB FOR RESEARCH ON THE STRUCTURE OF MATTER (LRSM)

Since 1994, the LRSM has presented a monthly series of materials-based lectures during the school year to science teachers. These are given by faculty and staff associated with the LRSM. The lectures are free, generally take place on Thursday evenings at 5:30 pm and are followed by food and refreshments during which teachers can engage the speaker in conversation about the talk or other aspects of education. Teachers can also receive Act 48 credit. All talks take place at:

LRSM, 3231 Walnut Street, Philadelphia

A flyer for the complete lecture series is attached. Upcoming lectures include:

February 20: David Chenoweth, Chemistry, "Building Functional Molecules for Application in the Life Sciences"

(Note change of date from Feb 27th)

David Chenoweth is a vibrant new faculty member in Penn LRSM's Chemistry department so come along and give him your support. Remember that pizza and refreshment will follow and that parking is available on-street via Pay and Display kiosks.

More information about the LRSM's outreach lectures is available at the link below. If you are interested in attending, please contact Andrew R. McGhie at 215-898-6461 or at [mcghie -at- lrsm.upenn.edu](mailto:mcghie-at-lrsm.upenn.edu).

<http://www.lrsm.upenn.edu/outreach/teachers.html>

13. LRSM SCIENCE CAFES AT WORLD CAFE LIVE AND STONEY'S BRITISH PUB

LRSM also offers a series of science cafes, open to the public. The next Science Cafe at the World Cafe Live, 3025 Walnut St., will be on Wednesday, Feb. 12, 2014, at 6:00 pm. The speaker is Prof. William Wunner, Wistar Institute, and his topic is 'Rabies: A perpetual killer disease...' , see flyer attached. On-street parking is available on Walnut St. using Pay and Display kiosks. Come early for dinner and a good seat during Happy Hour, 5-7 pm. No purchase is necessary to attend this talk.

Upcoming Science Cafes include:

February 10, 2014 at Stoney's British Pub in Wilmington: "Electrochemical Energy Conversion & Storage", John Vohs, Chemical Engineering at the University of Pennsylvania

February 12, 2014 at World Cafe Live in Philadelphia: "Rabies - A perpetual killer disease of humans challenges scientists, public health officials, and governments", William Wunner, Wistar Institute

March 3, 2014 at Stoney's British Pub in Wilmington: "Will it float? The science of keeping one's head above water", Bill "Bunsen" Berner, Penn

March 5, 2014 at World Cafe Live in Philadelphia: "Rock Mechanics of Fracking", Tim Bechdel, Enviroscan, Inc and Penn

Full schedule here: <http://www.lrsm.upenn.edu/events/sciencecafes/>

14. AMERICAN HELICOPTER MUSEUM & EDUCATION CENTER SEEKS EDUCATORS FOR ADVISORY BOARD

The American Helicopter Museum and Education Center, located in West Chester, PA, is looking for educators who might be interested in joining our Education Advisory Board. The Education Committee meets once a month, either on-site at the Museum, or via phone-in conference. They are looking to expand

their education offerings and would like advice from educators, either current or retired, on what is needed in the classroom, as well as professional development. The Museum has an extensive collection of rotary-wing artifacts, helicopters, autogiros and convertiplanes on display, as well as a library and archives. Education Advisory Board members brainstorm the best way to use the Museum's resources in public education programs.

In addition, the museum is always looking for volunteers who may have an interest in the mission of the museum. Please refer to the attached flier describing a number of volunteer opportunities.

Inquiries should be directed to Patti Spackman at pspackman@americanhelicopter.museum.

15. DUPONT CHALLENGE SCIENCE ESSAY COMPETITION

The DuPont Challenge Science Essay Competition is one of the foremost student science and technology prize programs in the United States and Canada. It has two primary objectives: to help increase science literacy among students and to motivate them to excel in communicating ideas in science, technology, engineering, and mathematics (STEM). Students may write a 700 to 1,000-word essay that addresses a topic of their interest within four categories of challenges. This year's four challenge areas are:

Challenge #1: Together, We Can Feed the World

Ensuring that enough healthy, nutritious food is available for people everywhere is one of the most critical challenges facing humanity. This focus on providing for the needs of a growing population will help developing countries prosper, and foster economic growth around the world.

Challenge #2: Together, We Can Build a Secure Energy Future

While the demand for energy grows, the supply of fossil fuels will not. With a growing population, we will need to use those existing resources as efficiently and effectively as possible, and find better ways to harness renewable energy sources, as well. These transitions will stimulate new industries and power clean economies.

Challenge #3: Together, We Can Protect People and the Environment

A growing global population places increased pressure on people and the environment. And as the world develops, humanity places greater value on both life and the earth we all share. We believe that life and our ecosystem are precious, and we're working to protect them.

Challenge #4: Together, We Can Be Innovative Anywhere

Innovations in science, technology, engineering, and mathematics (STEM) all

help to make the world a better place. We can use scientific research to solve issues ranging from medicine and health to mathematical computation to any STEM topic we are passionate about. The diverse and ever-changing world of science is open to you!

The contest opened November 15 and closes to submissions January 31, 2014. For more information, check out <http://thechallenge.dupont.com>

16. KOHELET YESHIVA HIGH SCHOOL SEEKS PART-TIME MATH TEACHER

Kohelet Yeshiva High School, in Merion Station, is looking for a part-time math teacher capable of taking over an Algebra 2 class and a statistics class. This would be effective in January until the end of the school year. For further information, contact Dr. Leslie Cohen Rogers, Interim Dean of General Studies, Kohelet Yeshiva High School, 223 North Highland Ave., Merion Station PA 19066. tel: 610-667-2020 (ext. 3050). lrogers-at-koheletyeshiva.org

17. FREE SCIENCE SATURDAY OPEN LECTURES JANUARY-MARCH AT PRINCETON'S PLASMA PHYSICS LAB

Science on Saturday is a series of lectures given by scientists, mathematicians, and other professionals involved in cutting-edge research. Held on Saturday mornings throughout winter, the lectures are geared toward high school students. The program draws more than 300 students, teachers, parents, and community members each Saturday. Topics are selected from a variety of disciplines.

The program runs January through March, and is free and open to the public. NO REGISTRATION IS REQUIRED to attend the lectures; however, a valid, government issued, photo ID is necessary to gain access to the Laboratory for anyone over 18 years of age.

Lectures begin promptly at 9:30 AM, but attendees are advised to show up early to make sure they can actually get a seat. Doors open at 8:15. Free breakfast is provided before the lectures. The hour-long lectures are followed by a Q&A session which typically ends by 11:15 AM.

The next few lectures will be:

February 1: The Invisitable World of Marine Microbes: How Earth's Smallest Living Things Have the Biggest Impact on How Our Ocean Works (Prof. Kay Bidle, Rutgers)

February 8: Uncovering our Cosmic Origins: What We Know, What We Can Know, and What Limits We May Face (Prof. William Jones, Princeton)

February 15: Blown Away: What Knot to Do When Sailing, by Sir Randolph Bacon III (Prof. Colin Adams, Williams College, cousin-in-law to Sir Randolph

Bacon?)

More information here, and in the attached SOS flyer: <http://www.pppl.gov/events/upcoming>

18. PRINCETON UNIVERSITY HOSTS 13TH ANNUAL YOUNG WOMEN'S CONFERENCE IN STEM

Princeton's 13th Annual Young Women's Conference in STEM will be held on March 21, 2014 at Princeton University's main campus. Young women in grades 7-10 are invited to attend with their school groups of 3-10 students. Registration is free but must be completed by February 14th. More information on the YWC can be found here: https://pppl.princeton.edu/www.pppl.gov-ywc_information

19. FREE FIELD TRIPS AND PROFESSIONAL DEVELOPMENT WORKSHOPS AT THE NASTAR CENTER

The NASTAR CENTER -- ETC's National Aerospace Training and Research Center, is the premier air and space training, research, and education facility in the world. It is located in Southampton, PA, which Google tells me is a 35-minute drive north from Center City, Philadelphia. The NASTAR Center's Education Programs offer unique, hands-on learning experiences for K-12 Students, Educators, and the General Public in an authentic aviation and space training environment. Programs incorporate STEM (Science, Technology, Engineering, and Math) education objectives with fun, inspiring, and engaging activities centered on the worlds of aviation and space.

They offer field trips and scout programs geared towards PA academic science standards, as well as summer workshops for teachers. (The students will be disappointed to learn they don't get to play in the centrifuges; I'm not sure if the teacher workshops are more interactive.) For more information or to schedule a Teacher Orientation and check out the facilities before planning a trip, check out their website at: <http://www.nastarcenter.com/education>

20. NASA EXPLORATION DESIGN CHALLENGE

Audience: K-12 Educators and Students

Virtual Crew Registration Deadline: March 14, 2014

Students from Kindergarten through 12th grade will have the opportunity to play a unique role in the future of human spaceflight through participation in NASA's Exploration Design Challenge, or EDC. NASA EDC invites students around the world to think and act like scientists in order to overcome one of the major hurdles of deep space long-duration exploration -- the dangers associated with space radiation. Students taking part in the challenge will discover how to plan and design improved radiation shielding aboard the Orion Multi-Purpose Crew Vehicle, currently being developed by NASA, Lockheed Martin and other partners

to carry astronauts to space, venturing farther than humans have ever gone before.

Through a series of science, technology, engineering and mathematics, or STEM, engagement activities, students in grades K-8 will analyze different materials that simulate space radiation shielding and recommend materials that best block radiation and protect astronauts. Students in grades 9-12 will think and act like engineers as they apply what they learn to design shielding to protect a sensor on the Orion crew module from space radiation. After a review of the design solutions submitted by teams in the grades 9-12 challenge, five finalist teams will be selected and matched with a mentor from NASA to test their designs in a virtual simulator. The winning team will build a prototype radiation shield that will be analyzed and submitted to Lockheed Martin for flight certification on the inaugural flight of the Orion Exploration Flight Test, or EFT-1.

The five U.S. finalist teams from the grades 9-12 challenge will be invited to attend the EFT-1 launch, currently scheduled for November 2014. The names of all students, grades K-12, participating in the NASA EDC will fly aboard the spacecraft as honorary virtual crewmembers for Orion's first flight. The deadline to register students for the virtual crew is March 14, 2014 .

For more information and to register online, visit <http://www.nasa.gov/education/edc>. For more information about Orion, visit <http://www.nasa.gov/orion>. Email any questions about this opportunity to nasaedc-at-nianet.org .

21. COOL LINKS:

Stephen Hughes of Conestoga High School (recently retired) has written these physics games. They cost money for the full game, but there are some 15-day free trials. Has anyone checked them out?

<http://www.darngoodsolutions.com/mms/physics.htm>

I recently learned from Dan Burns on the AP Physics Listserve about a website called Zaption that allows you to combine add interactive elements, such as clicker-type questions, to Youtube and Vimeo videos. There a number of possible question types, including having them draw on a figure, respond numerically, or select options from a list. The instructor can view the responses or download them as a spreadsheet file. You can also edit videos by combining them, changing the start/end times, or adding images or text windows next to a video to annotate it. If you like using screencasts or video lectures, this looks like a really cool way to make them more interactive and ensure that students actually watch and pay attention to them. It's not actually free -- it's \$49/year for the instructor, but free for students to view; there are also higher subscription levels and site licenses available, and a free 30-day trial so you can play with it. Here's the video Dan created to demonstrate some of the features -- he took a Veritasium video on temperature and a clip from "A Christmas Story" and added some

educational, interactive elements: <http://zapt.io/t3tfsxpg>

The main website is here: <http://www.zaption.com/>

Dan Burns also maintains an extensive online collection of science clips from The Simpsons:

<http://www.lghs.net/ourpages/users/dburns/ScienceOnSimpsons/Clips.html>

22. SEPS AAPT ONLINE

For news, upcoming events, and photos of past events, check out the SEPS AAPT web presence online and on Facebook!

Website: <http://www.physics.upenn.edu/~aapt/>

Facebook: <https://www.facebook.com/?ref=logo#!/group.php?gid=166735829132>