# TPT *WebSights* column draft for February, 2018:

*WebSights* features announcements and reviews of select sites of interest to learners and teachers of introductory physics. This column is available as a web page at [PhysicsEd.BuffaloState.Edu/pubs/WebSights/](http://PhysicsEd.BuffaloState.Edu/pubs/WebSights/).

If you have successfully used a physics website that you feel is outstanding and appropriate for *WebSights*, please email me the URL and describe how you use it to teach or learn physics. macisadl@buffalostate.edu.

**STEMcoding project releases "Physics of Video Games" Hour of Code activity**

<[go.osu.edu/hourofcode](http://go.osu.edu/hourofcode%22%20%5Ct%20%22_blank)>

**<**[hourofcode.com](http://hourofcode.com/%22%20%5Ct%20%22_blank)**>**

Until recently, the world's most popular K12 computer science website <hourofcode.com> did not have any physics-focused coding activities. Hence, the STEMcoding project <[u.osu.edu/stemcoding](http://u.osu.edu/stemcoding%22%20%5Ct%20%22_blank)> just released the "Physics of Video Games" Hour of Code video tutorial on <[hourofcode.com/learn](http://hourofcode.com/learn%22%20%5Ct%20%22_blank)>. The "Physics of Video Games" coding activities are intended for absolute beginner programmers in grades 9-12 and they were designed with significant feedback from high school physics teachers. The STEMcoding project, which was recently selected for the AIP Meggers award, is led by Prof. Chris Orban from Ohio State University and Prof. Richelle Teeling-Smith from the University of Mt. Union.

*Submitted by Prof. Chris Orban <orban@physics.osu.edu>.*

**Classroom Discourse: New NSF CADREk12 website has links to K-12 resources**

<[cadrek12.org/argumentation-critique-other-discursive-stem-practices](http://cadrek12.org/argumentation-critique-other-discursive-stem-practices)>

This new NSF Discovery Research K-12 program CADRE (Community for Advancing Discovery Research in Education) website has links to NSF-funded K-12 STEM projects in curriculum and professional development on argumentation, critique, and discourse in the classroom.  Also videos, articles, books & papers in research and development on classroom discourse. I particularly enjoyed the professional development videos presenting student discourse and argumentation, particularly well developed here in mathematics. Highly reminiscent of modeling physics discourse adapted to non-physics grade school students.

*Posted to Modeling-L by Jane Jackson.*

**Nick Berry’s “Datagenetics” Blog**

<[datagenetics.com/blog/august32016/index.html](http://datagenetics.com/blog/august32016/index.html)>

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<datagenetics.com/index.html>

Educated as an Aeronautical and Astronautical Engineer, Nick is currently a “professional data miner” working for FaceBook with interests in gamefication and data privacy. I have been greatly enjoying his blog of over 280 posts dating back to 2009 on self avowed “geekery” including topics including physics, mathematics, computing, game theory, engineering and so forth. I was first drawn to Nick’s excellent post on Lagrange points, and his interesting posts on cooling spaces with fans, windmill efficiency, gravitation, golf ball design, aircraft design and so forth include much fascinating physics, including introductory mathematical analyses. His posts on triangular truss analysis, optimizing ice cream cones via simple calculus, “vestigial” trigonometry functions, credit card number check digit algorithms and best line fitting are joyous nerdery. Berry also posts on current and historical news events, various standards and a very nice set of posts with an accompanying TEDx talk on data security and password / PIN code analyses from hacked and widely-available data sets (go look for your own PIN right now, and change it accordingly). Take a few minutes to scan some of these posts (and update your PIN).

**Another Feynman talk on YouTube**

<tinyurl.com/WS-FeynmanNano>

<en.wikipedia.org/wiki/There%27s\_Plenty\_of\_Room\_at\_the\_Bottom>

<www.zyvex.com/nanotech/feynman.html>

<en.wikipedia.org/wiki/Photolithography>

In 1959 Nobel Laureate Richard Feynman gave a famous talk at APS entitled “There’s Plenty of Room at the Bottom” describing the potentials and opportunities in nanotechnology and nanoscale research. There are several transcripts and websites dedicated to that talk, which did not itself advance the field though it did inspire some others (Feynman offered two $1000 prizes for miniaturizing text and creating a tiny motor). Much later many scholars of nanotechnology “rediscovered” and acknowledged the speech. I was recently made aware of a YouTube recording of “Tiny Machines” recapitulating and updating that speech that Feynman made 25 years later in 1984, barefoot at Esalen Institute, Big Sur, California. Included in the 1 hour 20 min talk are several minor and human mathematical errors, a description of the photolithographic process for making integrated circuits, and a lot of Feynman charm.

*Tweeted to the official Twitter account of the Institute of Physics.*

**Some German Physics Outreach sites: Physics in Advent, Physics for Refugees and Physics for Streetchildren**

<www.physik-im-advent.de/about>

<www.dpg-physik.de/pff/index.html>

<www.epsnews.eu/2016/12/physics-for-all-a-project-to-carry-physics-into-refugee-sites/>

<physik-patio13.de/en/physik-fuer-strassenkinder/>

I spent some time this past semester in Germany and had an extended opportunity to become aware of several of the German Physical Society’s (DPG) outreach efforts. I was impressed with Physics in Advent (Physik im Advent), a 24 day long collection of daily simple home physics and mathematical physics activities and experiments for the public. These Christmas-themed activities are presented via short videos in English, and there are five years worth of interesting activities. I also experienced and enjoyed the curriculum developed for refugee schoolchildren called Physics for Refugees (Physik für Flüchtlinge) which are delivered around the country by volunteers at about 60 sites (including two in Cologne). These PfF activities in turn were developed by two physics education researchers from Heidleburg, Prof Dr. and , who have been running an interesting project for homeless Latin American street children (Physik fuer Strassenkinder) described at the pad13 website.

<tinyurl.com/WS-LAT-GradStu>

<[time.com/5041947/graduate-student-protest-gop-tax-bill/](http://time.com/5041947/graduate-student-protest-gop-tax-bill/)>

<nature.com/articles/d41586-017-05925-6>

<insidehighered.com/news/2017/11/30/graduate-students-across-country-protest-tax-plan>

<[money.cnn.com/2017/11/29/pf/college/house-tax-plan-graduate-students/](http://money.cnn.com/2017/11/29/pf/college/house-tax-plan-graduate-students/)>

<[sciencefriday.com/segments/how-much-will-the-house-tax-plan-cost-grad-students/](https://www.sciencefriday.com/segments/how-much-will-the-house-tax-plan-cost-grad-students/)>

<science.sciencemag.org/content/276/5320/s-scope >

At the time of this writing, the US Senate and House of Representatives are negotiating a new tax bill that proposes a significant impact on graduate student personal finances for teaching and research assistants, which would adversely impact finances for the majority of full time physics graduate students in the US. Graduate students around the country are concerned, protesting and marching. There are several excellent articles in online news about the situation, particularly the Washington Post piece discussing the parts of the situation owned by US research academic institutions. Many column readers, most of my higher education colleagues and myself all benefitted from the tax-free tuition scholarship system, which is in jeopardy for future graduate students – a tax increase in the thousands of dollars would greatly impact graduate students, particularly those already living below the poverty line. While similar initiatives have been historically advanced by congress and dropped during reconciliation (E.g. in 1997) this time this ‘small constituency’ issue may get lost in the general outrage associated with this particular reconciliation. Please consider making yourself heard to your representatives on this issue.

**Weekly and monthly newsletters / blogs / columns regarding general physics education and physics**

<[physedweekly.blogspot.de/](http://physedweekly.blogspot.de/)>

<[physicstoday-info.org/1Y69-5AULR-C4E1P1H8CB/cr.aspx](http://physicstoday-info.org/1Y69-5AULR-C4E1P1H8CB/cr.aspx)>

<[physicstoday.scitation.org/journal/pto](http://physicstoday.scitation.org/journal/pto)>

<[aapt.org/aboutaapt/ennouncer/](http://www.aapt.org/aboutaapt/ennouncer/)>

I have been enjoying University of Pittsburgh PER Ph.D. candidate Danny Doucette’s “Physics Education Weekly” blog hitting highlights of the physics education journals, news and blogs. He has been blogging weekly since September and his very active twitter feed @danny\_doucette is also worth following for the twitterati. The AIP (American Institute of Physics) publication “Physics Today,” which all AAPT members should be receiving also produces a highly readable and enjoyable weekly newsletter “Physics Today: The Week in Physics” for physicists of every age, which can be had by registering on the Physics Today website -- scroll down and look for “receive weekly updates.” TPT readers should also be receiving the AAPT monthly “ennouncer” newsletter.