

WebSights features announcements and reviews of select sites of interest to physics teachers. All sites are copyrighted by their authors. This column is available as a web page at 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.

• ***The Chemical History of a Candle* by Michael Faraday (and Bill Hammack and Don DeCoste)**

engineerguy.com/faraday/

www.amazon.com/Chemical-History-Candle-Michael-Faraday/dp/0486425428

One of my favorite physics party tricks —taught to me by physicist Michael Faraday—is to gently blow out a candle and then quickly reignite it by lighting the “smoke” trail and watching the flame travel down to the wick. I have purchased and given away several Dover edition copies of Faraday’s short book for youth, *The Chemical History of A Candle*, taken from his Royal Society Christmas Lectures for youth of 150 years ago, illustrating the powers of scientific observation and scientific reasoning examining the chemical, physical, and even biological processes and equilibria displayed within the combustion of an everyday candle. Unfortunately, online versions of this work usually lack his illustrations (and brevity), but Bill Hammack (the Engineer Guy) and colleagues have taken up modernizing Faraday’s work on as a project, producing an updated edition of the book, elementary though middle school-pitched student investigation worksheets, a teachers’ guide, and six 5- to 25-minute videos (original, commentary, and subtitled versions), all freely available. Bravo, Engineer Guy.

• ***ATE Project for Physics Faculty publish 25 lab/activities online***

physicsworkshops.org/Labs_Activities/labs.html

This project was led by Tom O’Kuma and Dwain Desbien. “The labs/activities found on this page were developed at writing conferences as part of the ATE Project for Physics Faculty. These conferences brought TYC and HS physics teachers together to write, test in their classrooms and provide feedback to the project PI’s. The 25 activities below are not all the ones developed but are the ones that have been the most tested and have the widest applicability to courses TYC and HS teachers teach. These labs/activities were not written to necessarily fill a typical 3-hour lab time slot. Some may only take an hour and some will span over several class periods.”

• ***“3blue1brown” videos uses spring constants to develop Snell’s law***

www.3blue1brown.com/

tinyurl.com/WS-Zeta

tinyurl.com/WS-Snell3b1b

[www.cassiopeiaproject.com/vid_courses3.php?Tape_](http://www.cassiopeiaproject.com/vid_courses3.php?Tape_Name=physics)

[Name=physics](http://www.walter-fendt.de/ph14e/huygenspr.htm)

www.walter-fendt.de/ph14e/huygenspr.htm

I have been looking at the “3blue1brown” channel watching Grant Sanderson’s software-generated animated mathematics, particularly his video on visualizing the Riemann zeta function and analytic continuation. Ordinarily, I find mathematical theory about as appealing as reading chess books, but these animated techniques for learning math have helped me see these topics as quite attractive and cool (as are the zeta function and analytic continuation). A physics teaching colleague recommended to me a unique video on Snell’s law (as an extension of the Brachistochrone problem) using a pair of springs of different k ’s and a sliding ring on a rod at the interface. I also recommend the better known Cassiopeia Project videos on Action and QED, and Walter Fendt’s Huygens’ Principle applets. *Submitted by Sam Cirpili of Buffalo Public Schools.*

• ***“The Mechanical Universe and Beyond” series now freely available on YouTube***

www.caltech.edu/news/pioneering-physics-show-mechanical-universe-now-youtube-53331

bit.ly/2gvNAA3

CalTech has made this excellent videos series of 52 half-hour lessons spanning an introductory calculus-based physics course freely available on YouTube. Thank you. I continue to recommend these to my students seeking videos physics supplements. *Posted to Tap-L by Cameron Nickerson and forwarded to Modeling-L.*

• ***Develop Thinking Skills: A short reading assignment for students by John Clement***

modeling.asu.edu/modeling/weblinks.html

scitation.aip.org/content/aip/magazine/physicstoday/article/67/5/10.1063/PT.3.2383

This is a short and simple written essay assignment fostering student reflection, promoting mindset, and countering stereotype threat. Interestingly enough, I am participating in a study with similar micro-interventions in my physics course here at Buffalo State right now. Scroll down to the section called “Research results for K-14 science teachers.” The reading for students is near the bottom of that section, just under a link to PERTS (at Stanford University—it has numerous mindset resources and mindset surveys to give students). The entire modeling webpage is a treasure trove of insightful physics teaching practices.

A related freely available *Physics Today* article, “Psychological insights for improved physics teaching” by Lauren Aguilar, Greg Walton, and Carl Wieman (May 2014, pp. 43-49), is also recommended. *Posted to Modeling-L by Jane Jackson of Arizona State University.*