

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.

Whiteboarding: The art and science of teaching physics via discourse

physicsed.buffalostate.edu/AZTEC/BP_WB/
modeling.asu.edu/thesis/MegowanColleen_dissertation.doc
fnoschese.wordpress.com/2010/08/06/the-2-interactive-whiteboard/
kellyoshea.wordpress.com/whiteboarding/
kellyoshea.wordpress.com/tag/whiteboards/
vimeo.com/channels/modelingphysics

This summer at Buffalo State we cut 125 dozen whiteboards for NY physics teachers while hosting visiting physics teacher preparation scholars from the University of Cologne, and I was asked to create a brief collection of URLs introducing strategies for whiteboard use fostering physics learning in the classroom. Hence the above starter set of links.

Physics, equity, and social justice: Why are there so few black physicists? by Moses Rifken

tinyurl.com/WS-Rifken1
quantumprogress.wordpress.com (Feb 2015 postings by Rifken)
tinyurl.com/IATMoses

“Find one black physicist who lived before 1950, and another now practicing research and report on both for next class.”

So starts Rifken’s six-class sequence on teaching social justice for his private preparatory school physics classroom. Rifken’s hour-long Global Physics Department presentation curriculum overview with relevant blog and documents lead through activities discovering underrepresented minorities in physics, developing critical conversations about race, racism, white and male privilege, common beliefs, appalling statistical data and research. Along the way uncomfortable conversations are undertaken, the James Sherley tenure denial case at MIT is examined, *White Privilege: Unpacking the Invisible Knapsack* by P. MacIntosh is discussed, and the “Implicit Associations Test” (IAT) is taken by students. Bravo, Mr. Rifken.

There are many good reasons why physics teachers should be aware of this issue. First, for the simple humane treatment of people. Second, a systemic dedication to educational equity makes Finland’s grade school STEM students excel. Third, a complete and accurate examination of how physics is done must include the discussion of “...done by whom?” and when I look around in the U.S. things appear extraordinarily problematic—which distorts our field. Finally, Rifken’s physics classroom efforts are a hot topic in the conservative media world (FoxNews, Breitbart, National Review, Daily Caller, Raw Story) so expect some student to bring this up in your physics class even if you don’t.

The Dzhanibekov effect or tennis racket theorem

tinyurl.com/WS-T-handle
tinyurl.com/WS-DZeffect
tinyurl.com/WS-RussellRacketFlip

Although this is a topic I consider mathematically beyond the scope of introductory physics, a number of readers recently pointed out this remarkable video of a T-handle spinning and flipping in microgravity on the ISS. This phenomenon is hard but not impossible to see on Earth without high-speed video, but has been described for projectile rotations of tennis rackets, books, and other solid objects that have intermediate axis moments of inertia. Dan Russell’s excellent video shows the phenomenon for a Ping-Pong paddle.

Submitted by multiple readers

More activities at Matt Blackman’s TheUniverseAnd-More website

<http://theuniverseandmore.com/>
Blackman has been at it again, and in addition to his earlier reported “Super Ultimate Graphing Challenge,” his excellent video game teaching introductory kinematics graph reading skills, Blackman has now added “Polarity Shift”—an “Electric Field Hockey”-like game moving charges through fields created by glued down stationary charges, a nice Wave Maker pulse collision simulator, a collection of physics videos, and his Einstein Dollar classroom motivational tool.

Submitted to Modeling-L by Eugenia Etkina, and visited live at a recent AAPT National Meeting in MD

APlusPhysics site update by Dan Fullerton

videos.aplusphysics.com
Dan Fullerton is curating a collection of YouTube physics videos on his APlusPhysics site. He reports “... that the ‘Videos’ section of the website is a database of hundreds of physics or physics-related videos that are curated, organized by topic, and constantly growing as teachers submit more videos of interest. When you add a video, all you have to do is paste in the YouTube ‘Share’ URL, title and describe the video, and choose a location for it to call home. It includes tutorials, short YouTube clips to inspire discussion, most anything of interest. And of course, I’m happy to add additional folders at the request of submitters. (You can view videos as a guest, but must create a free login to submit videos as it cuts down on spam.)”

Submitted by Dan Fullerton, admin@aplusphysics.com