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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.*

•"TRAINING: Training in research-based activities that support INclusive and INquiry learninG" website

https://labtatraining.home.blog/

by Danny Doucette

"The goal of this project is to share a model for one way to do professional development for undergraduate laboratory Teaching Assistants. The activities are active and engaging for TAs, and focus on supporting inquiry learning and promoting equitable group work in introductory physics labs."

Submitted by Danny Doucette, University of Pittsburgh Physics

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• Convergence on diversity and underrepresented students in physics, STEM, and in general National Science Board released Science & Engineering Indicators 2020: State of U.S. STEM education

tinyurl.com/WS-PToct19
tinyurl.com/WS-PTsep19
newsletter.oapt.ca/files/demonstrating-diversity.html
tinyurl.com/WS-NAPindicators2019
en.wikipedia.org/wiki/Linda_Darling-Hammond
learningpolicyinstitute.org/product/preparing-teachers-deeper-learning-book
tinyurl.com/WS-FINclusion

A number of interesting pieces on diversity and equity have appeared in recent literature. First of all, the latest (October 2019) *Physics Today* has two pieces on "Pathways to the Ph.D. for underrepresented students in physics and astronomy" by A. Rudolph and "Ongoing mentorship works for retaining minorities in STEM" by T. Feder. The September issue of *Physics Today* featured the piece "A physics department fosters an inclusive environment" by H. Hill. A catalog of 250 diverse scientists collected by Cormier, Lee, Naudts and Tevlin appeared in a recent OAPT Newsletter. And the National Academy of Science's press (NAP) released a set of reports discussing U.S. STEM education in higher education in science and engineering, and elementary and secondary education in mathematics and science. As well as being important reference material, the latter reports identify underrepresentation, diversity, and equity as issues. Many policymakers are working hard to make STEM and physics a friendlier place where all students can succeed, perhaps one of the paramount issues of our time.

I was bemused to see one of my favorite non-physics education policy authors, Linda Darling Hammond, just released a book titled *Preparing Teachers For Deeper Learning* characterizing excellence in teacher education programs—it turns out the Finns were right; if you want excellent academic programs, explicit program goals for creating a welcome environment for all, addressing equity and inclusiveness, and even discussing social justice all seem to work.

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• Paul Anderson site dedicated to NGSS and grade school physics pedagogy

bosemanscience.com
bozemanscience.com/ngss
thewonderofscience.com
thewonderofscience.com/phenomenal
islephysics.net

Recently through a discussion on how to implement the Next Generation Science Standards when teaching physics, I was introduced to the online resources developed by Paul Anderson. Anderson, originally certified in biology, taught science for 20 years in Montana, has created hundreds of YouTube videos, and works as an education consultant. His videos include standard and AP science topics, but most importantly a detailed breakdown of NGSS instruction with examples. This includes explicit videos with learning progression examples for each subtopic within Scientific and Engineering Practices, Crosscutting Concepts, and the Physical Science, Life Science, Earth and Space Science, and Engineering, Technology and Applications of Science Disciplinary Core Ideas (all 44 DCIs). If you are asked about physics and NGSS by a teacher or you yourself are responsible for teaching to the NGSS or a state modification of the same (e.g., the New York State Science Learning Standards are a modification of NGSS), then you should know about Anderson's work. I was not unhappy with his videos on energy, which makes them pretty OK (it's easy to be terrible here).

Where Anderson really shines is when he discusses classroom STEM pedagogical practices, particularly phenomenon-based instruction in terms of NGSS nomenclature. His "wonder of science" videos on anchoring phenomenon (a curated list of classroom phenomena) and its use and on classroom discourse are somewhat reminiscent of Etkina's Investigative Science Learning Environment (ISLE) work, though her work is much more physics-focused and articulated while Anderson spends a lot of time on other disciplines and topical and conceptual progressions across the K-12 instructional span. I think the Anderson resource is very useful for those teaching science methods courses or teacher professional development, while being very helpful to any physicist asked for help by a K-12 teacher struggling with NGSS. In the near future (if not already) pretty nearly every general K-6 teacher and middle school and high school science teacher in the United States will be struggling with NGSS.

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• More YouTube Physics Channels: DrPhysicsA

youtube.com/user/DrPhysicsA

DrPhysicsA is dedicated to UK A level and GSCE physics, with a listing of about 200 stand-and-deliver-style videos intended for a revision guide at http://www.bobeagle.co.uk/drphysicsa.html. DrPhysicsA has a PhD in nuclear physics from King's College, London, and the collection is unsurprisingly strong in atomic, particle, and nuclear physics, as well as thermodynamics, relativity and quantum mechanics.

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