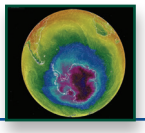

This image signals that this contribution is a featured part of the special collection on "Climate Change and Sustainability in Intro Physics."

Dan MacIsaac, Column Editor, Physics Department, SUNY-Buffalo State University, Buffalo, NY 14222; macisadl@buffalostate.edu

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.

• *Elaa_Eduworks Math Learning YouTube Channel*

https://www.youtube.com/@elaa_eduworks/shorts
https://www.youtube.com/@elaa_eduworks/videos

Over 1200 short and sweet videos on high school- and introductory college-level mathematics problems (think video math puzzles like Sudoko or crosswords) covering exponents, algebra, square roots, fractions, factorials, logs, PEDMAS, percentages, etc. All are phone-friendly, pause-able videos; solutions are available, and the shorts (which first drew me in) are all under 20 s long. A wonderful demonstration of how short TikTok-like videos can help learn math via entertainment.

• *OAPT Newsletter Presents Grade 9–12 Climate-Change Physics Activities*

http://newsletter.oapt.ca/files/greening-electricity-using-project-drawdown.html
https://drawdown.org/solutions-overview
https://drawdown.org/
http://newsletter.oapt.ca/

Ontario physics teachers Milica Rakic and Roberta Tevlin explain how to use Project Drawdown climate change mitigations and solutions while teaching standard Ontario high school units on electricity, climate change, and energy transformations. The drawdown.org site describes more than 92 techniques reducing sources of carbon, supporting carbon sinks, and improving society while seeking to avoid climate catastrophe by drawing down atmospheric greenhouse gases like CO_2. Important ideas like including CO_2 emissions in manufacture, installation, and operation of drawdown solutions, upfront costs and amortized costs for the authors' chosen 19 approaches (think EVs, LED lighting, concentrated and distributed solar, various wind resources, nuclear, hydro, etc.). These ideas can be discussed and roughly compared using a simple downloadable author-provided spreadsheet together with extensive lesson plan/classroom discussion prompts and notes. As the authors insightfully note, "Climate change is real, and we have the technological solutions. What we need to do now is to pressure the government to get them implemented."

• *Chemistry Website Three Twentysix on Orbital Clouds*

https://tinyurl.com/WS-orbclouds
https://www.youtube.com/@ThreeTwentysix

Why do electron orbitals look like clouds? A lovely short showing an analogy of electron clouds by repeatedly taking hundreds of photos of people in a plaza at random times and stacking these photos into "blurry-people clouds." I have used a similar gedankenexperiment analogy discussing repeatedly photographing a pendulum, but the people photos are much more fun, interesting, and compelling.

• *Electric Motor Winding Hypnosis*

https://www.youtube.com/@YuNo-do1zi

I have been oddly entranced by the highway hypnosis-like captivating movement patterns of the motor winding robots and machines of the Dongguan Nuoyuan Motor Equipment Co on their YouTube website. It's satisfying both to watch certain kinds of movement in manufacturing machines and to figure out how the commutators, brushes, connections, and magnetic field patterns produced in these electric motors, stators, and field windings work.

• *Science Friday Lesson Materials*

https://www.sciencefriday.com/educate/

Public Radio's Science Friday has a collection of educator materials including about 40 HS and MS physical science activities, many from their "Science Buddies" hands-on activities series. Things like making pinhole viewers, centripetal motion experiments with marbles on a paper plate (a dime in a balloon is my go-to), etc. Notably, these activities include photos, recently sourced and tested materials, and explicit links to NGSS.

• *TSG Physics Website from MIT's Dept. of Physics*

https://www.youtube.com/@TSGPhysics/playlists

MIT's Technical Services Group video website has a goldmine of useful physics teaching videos, including some classics. I was recently returned to this excellent resource via searching for their Stern-Gerlach Experiment (ESI 1967) video by Prof. Jerrold Zacharias.