

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.

• **Tim Dodd's The Everyday Astronaut YouTube channel**

<https://youtube.com/c/EverydayAstronaut>

Dodd's 250+ often lengthy videos are mostly dedicated to documenting launches, but he also has gems teaching about rocket science (physics and engineering) – and I found his “Is SpaceX's Raptor Engine the King of Rocket Engines?” to be a stunning 45 minute nerd-tour-de-force introduction to modern space launch rocket engine physics and mechanics, comparisons of large engine cycles, fuels, energetics, Mars mission considerations, structural considerations etc. I also found interesting his discussion videos on the physics choices and engineering design reasoning for features like classic abort towers vs. modern launch abort systems, as well as videos on aerospike and bell nozzles, the latest crew capsules from SpaceX and Boeing, why did the Lunar Lander have missing ladder steps, why Starship has only two rear fins and so forth. It's exciting to be an aficionado and our students love these examples of engineering design and physics.

• **Delores Gende's Resources for Physics Remote Learning Google document**

<https://tinyurl.com/W5-Gende-Remote>

<https://sites.google.com/site/newapsiapphysics/home>

Gende's new clickable google document collection of online/remote physics teaching resources is making the rounds of the physics teacher's lists; Gende is also editor of the *Talkin' Physics* column in this journal and is a well-respected figure in AP physics instruction, hosting a well-known AP physics teaching support website. Her new google document contains an up-to-date and succinct collection of remote physics teaching and learning sites and tools.

• **ASU Modeling Teachers' remote/online resources for teaching and learning physics**

<https://modeling.asu.edu/modeling/weblinks.html>

Jane Jackson, now retired from the ASU Modeling Physics group is continuing to stay active on the modeling listserv, and is maintaining a legacy website collection of modeling physics materials. See her newly (pandemic inspired) updated Remote/online, flipped classroom, and make-up resources heading most of the way down the page.

• **Appropriate cognitive expectations for appropriate audiences: Wired Magazine's Five Levels series on gravity, dimensions and lasers**

tinyurl.com/W5-5levels

I'm a big believer in carefully choosing different levels of learning goals for students, and even having different learn-

ing level expectations for different students in the same class while doing carefully selected rich, open ended physics activities. *Wired* magazine has started a YouTube series where experts explain one rich concept for five levels of audience: explanations for a child, a teen, college student, grad student and disciplinary expert—all in a 30-minute video. I enjoyed astrophysicist Prof. Janna Levin of Barnard College explaining gravity, and other physics explanations include Prof. Sean Carroll of CalTech explaining Dimensions, and Nobel Laureate Prof. Donna Strickland of Waterloo explaining Lasers. An interesting series for teacher reflection and physics content learning.

• **Technical tradesman video blogs: Practical Physics of Electrical Distribution and Air Conditioning**

<https://youtube.com/c/Bobsdecline/playlists>

<https://youtube.com/c/PracticalEngineeringChannel/playlists>

<https://youtube.com/c/HVACRVIDEOS/playlists>

New Brunswick, Canada lineman blogger Bob explains what linemen do in detail, and it's fun and insightful to see the practical application of physics, practical problem solving, and just interesting everyday activity of a working lineman. I have particularly enjoyed his videos touring his repair truck, discussing how power grids work, discussing substations, ground loops and induction, what's inside a transformer, resetting breakers, reacting to downed trees, auto accidents and power lines, using hotsticks and backfeeding transformers to power homes on an island, replacing and repairing electrical lines, cutouts and fuses, house meters, copper wire theft, and more. Bob gets into the nitty gritty maintenance of systems where the Practical Engineering collection on the Power Grid series runs out.

Southern California Heating Ventilation and Air Conditioning Repairman (HVACR) Chris also maintains a rich collection of tradecraft videos mainly dedicated to problem solving repairs of commercial restaurant AC systems. Chris observes, experiments, analyzes, diagnoses, and then performs (sometimes costly) interventions on electro-mechanical equipment that transports heat around and the thermal physics is fascinating. These videos run 4 minutes to an hour, with most about a half hour long, and explain how to maintain and troubleshoot AC systems, compressors, expansion valves, condensers, ductwork and duct smoke detectors, instruments etc. Real world physics for folk who want to stay out of an office chair.