

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.

• **Wacky Mechanics Gadgets: Quint’s BUILDS**

youtube.com/c/QuintBUILDS/videos
tinyurl.com/WS-QuintBUILDS

Quint’s YouTube channel “Better Understanding Involves Learning and Doing – BUILD” describes design, construction and refinement of many imaginative and fun Rube Goldberg-esque devices usually centered around energy physics and engineering. In one series of captivating videos, Quint designs, builds and refines a rain gutter downpipe turbine generator using roof rain for charging cellphones and LED lighting, and then stores some of this energy by pumping water into a barrel on his roof. He also designs and evaluates a wind turbine mounted on his truck grill, plays with cellphones and—my favorite—inflates his car tire with a garden hose water powered air compressor using ten 2L soda bottles (technically no moving parts except manually operated valves). The calculations and mathematical discussion of his air compressor is approachable to grade school students and he’s a fun and inspiring watch.

• **Science Article “Airborne Transmission of Respiratory Viruses”**

tinyurl.com/WS-SciAirCovid
icemsg.wordpress.com/

Science recently published a tour-de-force peer-reviewed review article on the mechanics of aerosol transmission of respiratory viruses and infection mechanisms by expert researchers, with appealing graphics presenting the physical mechanics of aerosol creation, movement, inhalation, building airflow, masking and other mitigation strategies, along with extensive discussion and 205 references. Also see M. Olsen’s blog on “Infection prevention, emergency management and safety” which includes a discussion of the multi-hour latency of COVID aerosols and the subsequent need to remain masked indoors even when alone if air circulation is substandard (and it likely is unless you are filtering it yourself). Currently the pandemic is thankfully in a downturn but the kids aren’t vaccinated yet with winter coming on fast, so despite our pandemic fatigue, we still need to run the air filters, mask, and distance when possible. Want to measure air circulation quality? Check the CO₂ levels. We are still trying to minimize the integral of [COVID exposure] *dt*. Also go to an N95 mask if you can.

• **Climate Change, Decarbonizing and Nuclear Energy as a Possible Bridging Technology**

vernier.com/2021/10/11/three-must-watch-videos-about-climate-change/
tinyurl.com/WS-KSclimatenuke
tinyurl.com/WS-LEnergyProf
tinyurl.com/WS-LEnergyRecent

There is much discussion lately about decarbonizing the energy infrastructure of the planet to reduce climate change. Along the way, we will have to electrify as much as possible (especially transportation), substantially upgrade the grid and clean up electric power generation. Nuclear energy is an interim bridging technology for decarbonizing (some say even a long-term solution), and it seems clear that new nuclear will be built as well as continued expansion of larger wind and solar plant and energy storage batteries and other storage technologies.

Vernier Instruments (an AAPT sponsor) has created “Three must-watch videos about climate change” presenting and linking to climate change activities and classroom videos, including “The Crystal Reef,” “What is Climate Change” and “Can We Cool the Planet?” A German educational video channel “Kurzgesagt” (Short Talk) made several videos addressing climate change and nuclear energy that one of my students directed me to—this is an active political topic in Germany where reactors are being shut down, solar panels are springing up everywhere and alas, more coal is being mined than before. “Do we Need Nuclear Energy to Stop Climate Change” is one of their better videos. Finally, the Illinois Energy Prof David Ruzic has many excellent videos discussing decarbonization, climate change, energy engineering, physics and economics, and the very promising Small and Micro Modular Reactors videos describe technology which could be placed into current fossil fuel power generation sites.

• **AIP Physics Trends Flyers**

aip.org/statistics/physics-trends

Fascinating flyers / letter-sized color posters for students and the public by the statistical research folk at the American Institute of Physics—the umbrella organization of both the AAPT and the American Physics Society. There are posters on Employment & Careers, HS, Undergrad and Graduate Education, Faculty, Women, Underrepresented Groups and more. I was particularly intrigued by the list of “Knowledge and Skills Used” by new physics bachelors employed in STEM fields. The top activity listed by frequency is “Working on a Team,” followed by “Solving Technical Problems.” That one is going on my classroom wall.