

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.

• **Using Physics to Make Your Classroom Safer Against COVID-19**

Ford Foundation scrappy filter: tinyurl.com/WS-FordFilter

EdWeek on School Air: tinyurl.com/WS-EdWeekPurifiers

Masks work vs. COVID: science.sciencemag.org/content/372/6549/1439

MinutePhysics: The Astounding Physics of N95 Masks:

tinyurl.com/WS-MPn95

UNSW: Which mask works best? tinyurl.com/WS-UNSWyuk

Clark Vangilder's COVID Links: tinyurl.com/WS-CVGLinks
Masks Work! Addressing mask misinformation: tinyurl.com/WS-OK2BsmartMasks

As the worldwide coronavirus pandemic continues to rage around us, the virus is widespread and mutating, and many adults and our children are not yet vaccinated. So it's time to use basic physics to demonstrate that physics teachers and students are not powerless and can use simple physics interventions to actively make our classrooms safer places by masking and air filtering. Our local physics alliance is planning a physics teacher make-and-take for Ford Foundation classroom air filters—using the “scrappy filtration kit” freely downloadable paper templates, cardboard, furnace filters (cheapest at big box stores, surprisingly) and 20-inch box fans. Our alliance outreach funds will provide the \$45-\$60 each for the kit materials initially (check with your own alliance), but teachers will have to replace the used furnace filters at semester's end. There are guides to commercial classroom air filters capable of 4 to 6 changes per hour in my thoroughly sealed classroom for under \$300, but I'm going with the emphatically homebrew cardboard device above and the multiple learning moments that will ensue.

Some of these references on masks and filtering are repeated from past columns and some are new. We now have published peer-reviewed research in *Science* supporting mask use against COVID-19. Henry Reich's Minute Physics YouTube series includes excellent videos of how masks work via random walks and the electrostatic physics of polarization, plus mathematical analyses of population masking. UNSW has a nice page discussing YouTube high speed camera footage of people speaking, coughing, and sneezing. Those of you facing mask misinformation have my condolences.

• **Drop Tower Physics YouTube Channel**

tinyurl.com/WS-DTphysics

cecs.pdx.edu/powerofplace/tablet/dryden-drop-tower.html

The Drop Tower at Portland State University allows experiments to be videotaped when the acceleration of gravity transitions from g to zero for a duration of 2.1 seconds. I have investigated the behavior of many of the demonstrations that we use in class including the gyroscope, pendulum (simple, conical, and chaotic), mass spring oscillator, and many others. You and your students may wonder, “What happens to a stack of coins when dropped into zero g ?” This is one of my favorite class demos. Make a theoretical prediction and then watch the experimental results. Do they match? Almost always they do not, so you and your class must explain why.

Please enjoy using the Drop Tower Physics YouTube Channel (18 videos) and watch for an upcoming journal article in *The Physics Teacher* called “Drop Tower Physics II.”

Submitted by William Dittrich of Portland Community College Physics

• **Joe Milliano's Desmos Refrigerator**

desmos.com/calculator/pkbp5rsb1s

The coolest *Desmos* animation / simulation I have yet encountered. See more fine physics learning opportunities at @MrJoeMilliano, and kudos to Joe.

• **Frank Noschese's Desmos Interaction Stations**

tinyurl.com/WS-FNinteractionStations

A set of wonderful introductory mechanics activities by Brian Frank, Kelly O'Shea, and Kristin Newton ported to *Desmos* by Frank Noschese. Thoroughly documented, slide-showed, blogged, photographed and discussed in appended links. A tour de force of great instructional practice both live and via technology. Bravo, all!