



# WebSights

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*WebSights* features reviews of select sites presenting physics teaching strategies, as well as shorter announcements of sites of interest to physics teachers. All sites are copyrighted by their authors. This column is available as a web page at <http://PhysicsEd.BuffaloState.Edu/pubs/WebSights>. If you have successfully used a site to teach physics that you feel is outstanding and appropriate for *WebSights*, please email me the URL and describe how you use it to teach. The person submitting the best site monthly will receive a T-shirt.

## **Nobel Physics: Blackbody Physics and Anisotropy of the Cosmic Microwave Background Radiation:**

The recent award of the 2006 Nobel Prize in physics to John Mather (NASA) and George Smoot (UC Berkeley) for their work on cosmology led to a series of PHYS-L discussions regarding teaching grade school students about the expansion of the universe and the big bang. The Nobel acceptance speeches (intended to be quite readable to the general layman) of Mather and Smoot can be found in a teachers' treasure trove of similar literature at the Nobel Prize website: [http://nobel-prize.org/nobel\\_prizes/physics/laureates/2006/](http://nobel-prize.org/nobel_prizes/physics/laureates/2006/). Discussions of CMB as the test of the big bang hypothesis appear at [http://map.gsfc.nasa.gov/m\\_uni/uni\\_101bbtest3.html](http://map.gsfc.nasa.gov/m_uni/uni_101bbtest3.html), and another among the wealth of online physics documents by John Denker of the PHYS-L list at <http://www.av8n.com/physics/expansion-of-the-universe.htm>. PHYS-L is described at <http://physicsed.buffalostate.edu/PHYS-L/index.html>, and archives can be searched at <https://carnot.physics.buffalo.edu/archives/>.

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**Daily newsletters of science:** Frank Nochese, HS physics teacher at John Jay High School in Cross River, NY, suggests the use of two daily physics newsletters: the PhysicsWeb Daily Newsletter of the UK Institute of Physics at <http://physicsweb.org>, and Pat Viele of the Cornell University Physics and Astronomy Library particularly suggests the interactive physics experiments at [http://physicsweb.org/resources/index.cfm/Education/Interactive\\_experiments/](http://physicsweb.org/resources/index.cfm/Education/Interactive_experiments/). His second choice is the science at NASA site <http://science.nasa.gov>. *[Dan: is the science at NASA site Nochese's second choice of daily physics newsletters?]*

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**Latitude, longitude,  $g$  and Earth's Magnetic field components for your classroom:** Jeff Schnick of Saint Anslem College emailed the suggestion that *TPT* readers "find the properties of your location by (a) visiting Topozone at <http://www.topozone.com> to get your latitude, longitude, and elevation courtesy of Maps a la carte, Inc., then (b) browsing to the National Geodetic

Survey's Surface Gravity Prediction calculator at [http://www.ngs.noaa.gov/cgi-bin/grav\\_pdx.prl](http://www.ngs.noaa.gov/cgi-bin/grav_pdx.prl) to determine the value of  $g$  at your location, and finally (c) stopping off at the National Geophysical Data Center's Compute Earth's Magnetic Field Values calculator at <http://www.ngdc.noaa.gov/seg/geomag/magfield.shtml> to get the Earth's magnetic field components at your location. *[Dan: where does the quotation end?]*

**Simple mechanics simulations and animations for classroom use from Microsoft:** Michael Magnusson, AP Physics teacher at Canisius High School in Buffalo, NY, suggests the utility called "Physics Illustrator" which is part of the Microsoft PowerToys for Windows XP Tablet PC. You can make drawings of objects, apply forces to them (including gravity or anti-gravity) and watch what happens. A video of the program in development can be viewed at <http://icampus.mit.edu/MagicPaper/>. The program comes with four ready-to-use examples and can be downloaded for free at <http://www.microsoft.com/windowsxp/downloads/powertoys/tabletpc.msp>. Another site with the example of a golf ball-bowling ball cannon is at <http://windojitsu.com/blog/physicsillustratorhints.html>. If you do not have a Tablet PC, you can still use this program. Look at the website <http://blog.hyper-cubed.com/archives/2006/02/05/how-to-use-physics-illustrator-on-non-tablet-pc/> for some instructions. You will need a PC with Windows XP and Service Pack 2 installed to run this package. You can either compile the source code yourself (the suggested way, but you need to compile a  $c\#$  project which can be tricky) or download a copy that someone else has already compiled (there might be a link on the above website).

Another free animation tool can be found at <http://linerider.org>. You draw an icy track with bump, jumps, and loops and watch a person on a sled slide down it. There is a members forum on that site where many examples can be found. Use it to illustrate the classic problem of calculating when a person will fly off while sliding down a hemispherical dome of ice. This program runs under Windows and Linux with the wine emulator.

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