WebSights

WebSights offers a selection of sites appropriate for teaching a standard topic year-long introductory physics survey course. This month presents some for teaching momentum conservation and work and energy; next month will feature sites for rotational motion and thermodynamics. All sites are copyrighted by the authors. This column is also 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 site and how you use it for possible inclusion in the column. The best site monthly will receive a T-shirt.

Web Resources for Teaching Impulse and Momentum Conservation, Work, and Energy

The Mechanical Universe. Fifty-two half-hour university physics lessons streamed as video-on-demand free of charge, http://www.learner.org/progdesc/series42.html. Programs 13–15 address momentum and energy. A great reference for teachers before teaching a topic, or as enrichment or a makeup assignment for high-ability students.


Water Rocket Physics. http://ourworld.compuserve.com/homepages/pagrosse/h2oRocketIndex.htm is a comprehensive site of water rocket physics, design, construction, FAQs, specialty launchers, competitions, bibliographies, mailing lists, etc. Also see NASA’s aerospace activities and lessons, http://www.grc.nasa.gov/WWW/K-12/aeract.htm, a very popular and widely used HS student design/competition project. See also the simpler film-canister, seltzer, or pop rocket project for elementary students at http://spaceplace.nasa.gov/en/kids/rocket.shtml, which I have also done with my daughter’s elementary-school-age birthday party guests, and for children’s physics outreach. Suggested by: C. Gosling.

Car Crashes and Auto Accident Reconstruction. A topic of great and timely interest to HS students appropriate for momentum and impulse. There are many insightful videos online; I show http://regentsprep.org/Regents/physics/phys01/accident/. Some lesson plans, activities, and freely downloadable worksheets at http://www.ihs.org/videos.


Collisions Simulations/Animation Applets. http://zebu.uoregon.edu/nsf/mo.html is a nice and simple (clean) 1-D introduction to this topic, with http://www.phy.ntnu.edu.tw/java/collision1D/collision1D.html introducing the coefficient of restitution and c.m./lab frames. Collision details in two dimension (reference frames, impact parameters) are explored at http://galileo.phys.virginia.edu/classes/109N/more_stuff/Applets/Collision/applet.html and http://www.scar.utoronto.ca/~pat/fun/fun.html. Suggested by: E. Fooks and C. Olzewsiki.

Compelling and popular animated basic tutorials of energy conservation and momenta suitable for enrichment, in-class projection, or as absence makeup/review are found at http://www.physicsclassroom.com/mmedia/momentum/cba.html and http://library.thinkquest.org/3042/. Suggested by: C. Olzewsiki.

Popular topical sites on energy and power include the physics of archery sites http://www.stortford-archers.org.uk, http://www.bodybuilding.com/fun/ing/weight lifting site at http://www.scar.utoronto.ca/~pat/fun/fun.html, which I have also done with my daughter’s elementary-school-age birthday party guests, and for children’s physics outreach. Suggested by: C. Gosling.


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