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This year *WebSights* will proffer a collection of select sites appropriate for teaching a standard-topic year-long introductory physics survey course. This first month presents some basic background sites and some sites for teaching kinematics; next month it will feature sites for teaching Newton's laws. 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 description and how to use it for possible inclusion in our column. *The best site each month will receive a T-shirt.*

Sites for Course Background

Powers of Ten. A classroom visualization/journey through 39 orders of magnitude in distance—galaxies through quarks (10^{+23}m through 10^{-16}m). This interactive JAVA site is based on a famous film of the same name by Charles and Ray Eames. I have projected this in class, to great student enthusiasm. http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10.

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Chemistry Math Review. A very plain collection of review materials including powers of ten (prefixes), units, significant figures, and a brief algebra reprise. I have assigned this reading/worksheet activity as part of individual work to students requiring remediation. http://www.old.umassd.edu/1Academic/CArtsandSciences/Chemistry/Catalyst/catalyst.html.

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Vectors Tutorials and Applet. A fast overview tutorial for able students recounting notation, graphical addition, decomposition, scalar multiplication, and dot and cross products is found at the University of Guelph: http://helios.physics.uoguelph.ca/tutorials/vectors/vectors.html. In class I project a JAVA physics application (applet) graphically illustrating vector addition and products that students can also use to check and visualize homework: http://www.pa.uky.edu/~phy211/VecArith/.

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The Magnitudes of Physics. A collection of interesting physical science data distributed with *The Physics Teacher* in 1996. Good for teacher problem examples or student review. http://smccd.net/accounts/goth/MainPages/magphys.htm.

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The Mechanical Universe. A collection of 52 half-hour university videotaped physics lessons from CalTech, streamed as video-on-demand free of charge. A great reference for teachers before teaching a topic, or as enrichment or a makeup assignment for high-ability students. http://www.learner.org/progdesc/series42.html.

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Some Sites for Introductory Kinematics

- There are several episodes of *The Mechanical Universe* dedicated to kinematics and vectors: programs two, four, and five. http://www.learner.org/progdesc/series42.html. While I don't usually play these programs for my students, I do sometimes show some of the animations.

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- Galileo Galilei was "Mr. Kinematics," and his life and science are briefly described in a Florence museum collection dedicated to him. The preserved finger of Galileo is always popular. http://brunelleschi.imss.fi.it/genscheda.asp?appl=SIM&xsl=biografia&lingua=ENG&chiave=300251. The life of Galileo is also described in a site devoted to Galileo's science and art (he contributed to the invention of geometric perspective in painting). http://www.crs4.it/Ars/arshtml/arstoc.html. Good sites for reference to kinematics and projectile motion, and for historical reading supporting student project work.

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- A HS tutorial appropriate for individual students or as a projected lesson resource describing one-dimensional kinematics with animated figures and graphs is found at http://www.glenbrook.k12.il.us/gbssci/phys/Class/1DKin/1DKinTOC.html. Another similar tutorial is found at http://www.physicsclassroom.com/mmedia/kinema/kinemaTOC.html. These tutorials are particularly helpful for students who have visualization problems because of the animated analyses of phenomena.

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- Two simulation applets I have used for students modeling free fall and projectile motion are http://www.nep.chubu.ac.jp/~nepjava/javacode/OneDimMotion/FreeFallOfABody.html and http://jersey.uoregon.edu/vlab/Cannon/index.html.

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- A nice projectile motion tutorial problem with solutions for the motion of a javelin is http://webphysics.iupui.edu/152/152f02/152Basics/projectiles/projectiles.html.

  The infamous 2-D relative velocity problem of the boat crossing the river is simulated in this applet from http://physics.bu.edu/~duffy/java/RelV2.html. If you assign this homework problem, use the simulator to discuss and check answers.

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It's time to request a digital projector for your classroom!