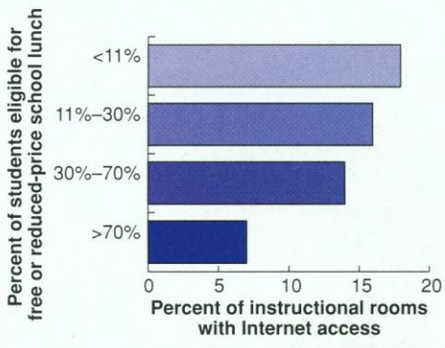
NET NEWS

Techno Trends

Although nearly two-thirds of U.S. schools were plugged into the Internet by 1996, access meant more to some students than to others. According to a new National Science Foundation (NSF) report released last week, schools in communities that are heavily minority and economically disadvantaged provide significantly fewer wired classrooms than do those in wealthier and whiter neighborhoods.



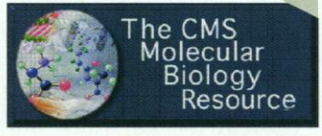
SOURCE: NATIONAL CENTER FOR EDUCATION STATISTICS

The Internet has become so much a daily part of our lives that it's now even being tracked by NSF, which for the first time has included a chapter on information technology in its biennial Science and Engineering Indicators. The 800-page 1998 edition cites one pooled analysis of studies finding that students in kindergarten through grade six who use PCs gain as much as half a school year on achievement tests compared to kids who don't—although the report dutifully notes that it's hard to compare the cost-effectiveness of computers to other kinds of teaching. Internet questions were also added to a regular survey of public scientific and technology understanding, showing that 27% of Americans have access to the Web and that many use it to look up science and health info. To read the report on the Web, go to www.nsf.gov/sbe/srs/seind98/start.htm

SITE VISIT

MolyBio Toolkit

www.sdsc.edu/ResTools/cmshp.html



Molecular biologists spend large chunks of their lives breaking up cells, extracting proteins and DNA, and running the stuff through gels and machines. But that's just the half of it—then they've got to go to a computer to make sense of the data, choosing from thousands of software tools. It's not always easy to find the right one, especially for free, on the Internet.

That's why Christopher M. Smith of the San Diego Supercomputer Center created CMS Molecular Biology Resources, which he describes as a "functional" listing of public-domain bio Web tools. Web sites typically list these tools by name or location, explains Smith, a biochemist turned computational biologist. But he's gone a step further: The 1900 or so links here are organized according to the task at hand, whether it's identifying a protein based on its peptide fragment map, scouring a gene for coding regions, predicting a protein's 3D structure, or doing a phylogenetic analysis.

The site runs down well-known tools like BLAST (Basic Local Alignment Search Tool), which combs databases for similar DNA or protein sequences. But "there are a lot of other useful tools that researchers aren't aware of," Smith says. One called WebCutter, for example, allows you to predict how many fragments you'd get if you cut up a nucleotide sequence with enzymes—without ever setting foot in a lab.

HOT PICKS

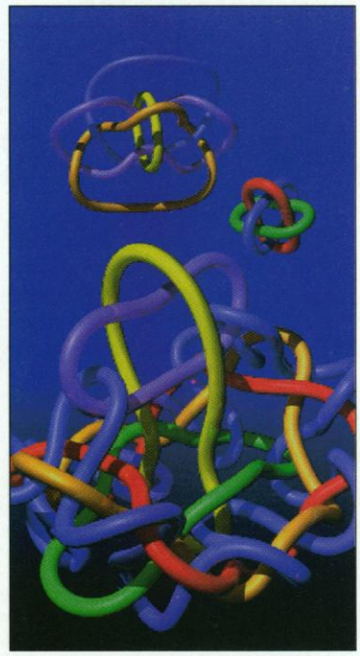
Warped trips. "Ever wonder what it would look like to travel to a black hole? A neutron star?" asks astronomer Robert Nemiroff on this page. If so, get set for a wild ride past blue-shifted stars and weird perspectives shown in several relativistically correct movies. antwrp.gsfc.nasa.gov/htmltest/rjn_bht.html

Patently obvious. For inventive types, this page holds a handy list of links to patent databases around the world, searching guides, legal resources, patent news, and more. www-sul.stanford.edu/depts/swain/patent/pattop.html

Saving species. Get a cybereducation on threats to species with *Biodiversity and Conservation*, a Web book created by Peter J. Bryant of the University of California, Irvine, for his classes. The 16 chapters on everything from recorded extinctions to deforestation and captive breeding are packed with hyperlinks. darwin.bio.uci.edu/~sustain/bio65/Titlpage.htm

COOL IMAGES

Knot a Pretty Site



"Knots keep our shoes on our feet, yet they're also highly developed abstract mathematics," says Rob Scharein, a computer science postdoc at the University of British Columbia. Illustrating the latter concept is Scharein's KnotPlot,* a site devoted to mathematical knots—loopy shapes with theoretical underpinnings in algebraic topology. The site abounds with colorful images and animations of knots created with the help of Scharein's KnotPlot program, such as the Brunnian links at right (knots that reduce to a simple loop if any component part is removed). Visitors will also find links to other knot sites and a primer on knot theory, which deals with knot classification, chirality, and equivalence.

* www.cs.ubc.ca/nest/imager/contributions/scharein/KnotPlot.html

SCIENCE ONLINE

Cells perform their own quality control, carefully checking their DNA for breaks before entering mitosis. In this week's Enhanced Perspective (p. 185), Walworth describes the molecules behind this process, including a key protein, RAD9. Online hyperlinks lead to explanations, illustrations, and movies of the cell cycle, plus more info about RAD9 itself. www.sciencemag.org/cgi/content/full/281/5374/185

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