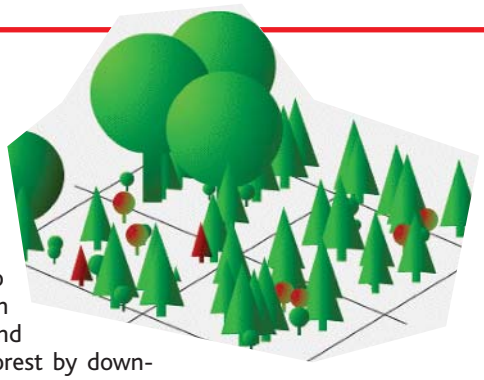
NetWatch

edited by Mitch Leslie



SOFTWARE

Forest in a Box

Even students who don't have a green thumb can grow and study an entire forest by downloading SimForest from Hampshire College in Amherst, Massachusetts. Aimed at 7th graders and up, the free virtual ecology program lets users seed a silicon ecosystem with combinations of more than 30 tree species and adjust environmental variables such as rainfall, temperature, and soil type. Long-term forest dynamics unfold on the screen, allowing students to gauge the response of their woodlands to climate change and other disturbances and to study processes such as succession, or gradual change in the types of trees. The software uses models from the literature, and advanced students can download a version of the program that allows them to adjust the equations. Sample curricula help teachers integrate SimForest into high school and college classes.

ddc.hampshire.edu/simforest

DATABASE

Portal to EPA Science

Want to find the latest Environmental Protection Agency review of mercury toxicity or see which agency scientists are studying environmental triggers for asthma? Check out this new public archive* of abstracts for EPA reports and research. For example, a search on the herbicide atrazine pulls up 17 documents—from data on atrazine levels in Lake Michigan to an ongoing study of whether pesticides can damage the developing immune system. Curators are adding hyperlinks to the agency's Environmental Information Management System.† It includes links to full-text reports and data.

* cfpub.epa.gov/si

† www.epa.gov/eims

DATABASE

Virtual Bug Collection

This entomology site from Harvard's Museum of Comparative Zoology can make life easier for insect taxonomists trying to identify a mysterious species and anyone else who needs to scrutinize an array of specimens. Instead of traveling to Cambridge, they can now scan records of the museum's more than 28,000 type specimens, the original samples used to describe the species. Over 4000 entries include images, including this iridescent Amazonian jewel beetle (below); photos of all specimens will be pinned up within 3 years, says entomologist Brian Farrell. Curators who want to go digital can download collection software and a tutorial.

mcz-28168.oeb.harvard.edu/mcztypedb.htm

EDUCATION

Statistics Starter Kit

Teachers seeking demonstrations or online experiments for a college probability or statistics class should check out this collection of Java applets designed by statistician Ivo Dinov of the University of California, Los Angeles. One set of simulations lets students explore important distributions such as the chi-square, Poisson, and binomial, which describes coin flipping and other events that have two possible outcomes. Students can see how modifying parameters affects the mean, median, variance, and other measures.

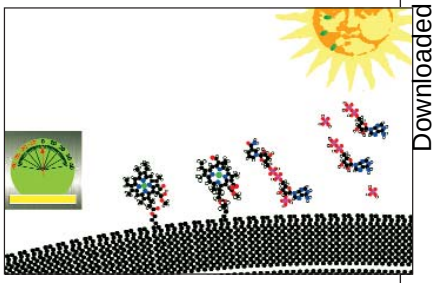
Another section runs more than 50 probability-related experiments. For instance, students can take a crack at the best guessing strategy for the Monty Hall problem, named for the host of the game show *Let's Make a Deal*. Contestants on the show had to guess which of three doors concealed a fabulous prize and avoid the doors that hid a goat. You'll also find online calculators, graphing and data analysis tools, a curve-fitting feature, and other applets.

socr.stat.ucla.edu

IMAGES

The Animated Cell

Featuring more than a dozen meticulous animations, this tutorial can help beginning college students follow the



intricacies of key processes in cell and molecular biology. Created by John Kyrk, a biologist and artist in San Francisco, the colorful graphics step through protein synthesis, meiosis, the Krebs cycle, photosynthesis, and other events. In this illustration of the light reactions of photosynthesis (above), two chlorophyll molecules protrude from the membrane of a plant's chloroplast. When photons of the right wavelength zap a chlorophyll, the free-floating molecules at the right move in and help synthesize ATP and NADPH.

www.johnkyrk.com

Send site suggestions to netwatch@aaas.org. Archive: www.sciencemag.org/netwatch

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