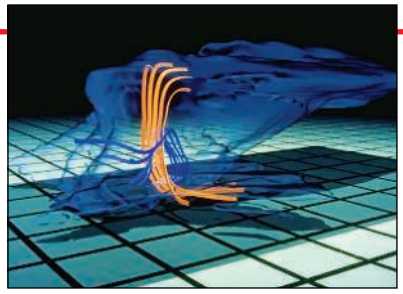
NetWatch

edited by Mitch Leslie



EDUCATION

Cyber Storm Chasing

The peak period for tornadoes is winding down, but hurricane season is roaring along and much of the West is gasping through a prolonged drought. Students can learn about these and other types of severe weather with this collection of photos, animations, satellite loops, and other media.

The site dovetails with an undergraduate textbook by atmospheric scientist Robert Rauber of the University of Illinois, Urbana-Champaign, and colleagues, but it's also a handy supplement for any meteorology class. The visuals include many examples of events such as lightning flashes in France filmed from the space shuttle. Students will also find maps and simulations to help them understand the atmospheric conditions that incite severe weather. Above, a model of thunderstorm formation shows rising warm air (orange) that feeds into the storm and sinking cool air (blue) that has shed its moisture.

severewx.atmos.uiuc.edu/index.html

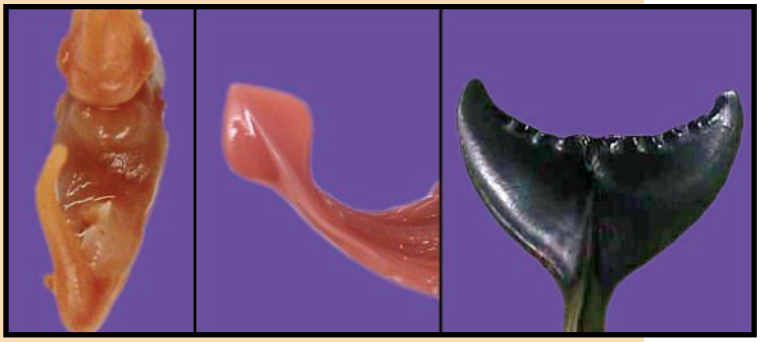
IMAGES

How the Dolphin Got His Flippers

Embryonic development in dolphins retrofits a land-adapted body for life in the sea. But the rarity of preserved specimens stymies students and researchers who want to study, say, how the forelimbs morph into flippers. Aimed at filling this gap is the newborn site Digital Library of Dolphin Development, created by anatomist Hans Thewissen of the Northeastern Ohio Universities College of Medicine in Rootstown and colleagues.

The atlas's images of whole and sectioned spotted dolphins (*Stenella attenuata*) span the formative period from about 3 weeks to 4 months after conception. (Total gestation time is 11 months.) Photo sequences show, for example, how tiny rear limbs sprout but then regress and how the long, tapered tail widens and flattens at the tip to form a fluke (below). You can also probe the gory details of internal anatomy with sectioned embryos representing three developmental stages.

www.neoucom.edu/DLDD



DATABASE

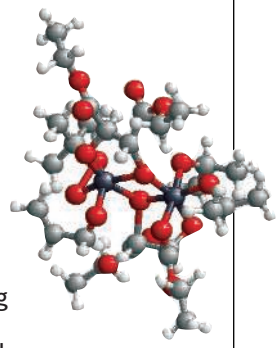
Discovering Our Inner Fly

Genetic pathways in fruit flies have revealed clues about human conditions from cancer to the neurodegenerative illness Huntington's chorea. This database from the University of California, San Diego, helps researchers quickly find fly equivalents for human disease genes. The collection, which is updated regularly, melds disease information from Online Mendelian Inheritance in Man with gene data from FlyBase. Glitches in the *CFTR* gene, for instance, cause cystic fibrosis, which clogs patients' lungs with thick mucus. Flies don't have lungs, but they do carry five genes with sequences similar to that of *CFTR*.

superfly.ucsd.edu/homophila

EDUCATION

Molecules on the Move



Organic chemistry teaching has come a long way since the days when textbooks supplied 3D viewers for studying molecular structures. The tutorial Mol4D, hosted by the University of Nijmegen in the Netherlands, puts organic chemistry into motion with animations that illustrate molecular vibrations, reactions, shape changes, and more. You'll need to download Chime, a free plug-in for modeling molecules, to see most of the movies.

Lessons in the more than 20 chapters include examining the 3D structures of molecules, such as this hypothetical intermediate in the synthesis of left-handed or right-handed compounds (above), to help explain why chemical reactions can tend toward one pathway over others. An online program lets students draw molecules and animate their interactions.

www.cmbi.kun.nl/wetche/organic

DATABASE

Crystal Palace

Geologists, surface chemists, and video game designers attend different conferences in the real world, and you wouldn't expect them to congregate in cyberspace. Yet all three groups have been visiting this crystal structures database, built by Robert Downs of the University of Arizona, Tucson, and colleagues. The collection corrals all the diffraction data ever published in four leading journals, including *American Mineralogist* and *The Canadian Mineralogist*—about 7000 minerals in all. The site also offers free software for viewing and analyzing the entries. So what would lure video game mavens to a bare-bones site with no connection to Doom? Crystallographers' shorthand distills a complex shape into just a few lines of numbers, Downs explains, and gamers are looking for a similarly concise way to render elaborate virtual environments.

www.geo.arizona.edu/AMS/amcsd.php

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

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Published by AAAS