

edited by Mitch Leslie

EDUCATION

See the Heat

Training an infrared-sensitive camera on the inky Elephant's Trunk Nebula (above, inset) reveals a stellar nursery aglitter with young stars (main image). At Cool Cosmos, a primer hosted by the California Institute of Technology in Pasadena, secondary school students and the public can learn the basics of infrared astronomy, which has allowed researchers to view the universe in a new light. Backgrounders get visitors up to speed on infrared radiation, which falls between visible light and microwaves on the electromagnetic spectrum, and explain how infrared measurements have helped astronomers spot faint stars and detect swirls of dust in what seemed to be empty space.

The site also provides a timeline of discoveries and classroom activities. For example, students can duplicate the pioneering experiment of the English composer and astronomer William Herschel, who in 1800 used a prism to split sunlight and infer the existence of infrared radiation. Fun galleries display impressive views of the night sky, along with infrared photos of animals, people, and everyday objects.

coolcosmos.ipac.caltech.edu

LINKS

Connect to Bioinformatics

This directory of bioinformatics Web sites, compiled by Francis Ouellette's group at the University of British Columbia in Canada, can help you locate everything from the genome of the SARS virus to guides for designing PCR primers. The site provides annotated links to hundreds of databases, tutorials, and other resources. Offerings include software to predict the folding patterns of RNA molecules, tools for analyzing two-dimensional protein gels, and a catalog of DNA "typos" called SNPs that can help researchers pinpoint disease genes.

bioinformatics.ubc.ca/resources/links_directory



SOFTWARE

Desktop Genetics Lab

By firing up this free program, beginning biology students can run simple genetics experiments, and they'll never have to swat an escaped fruit fly. Created by Brian White of the University of Massachusetts, Boston, and colleagues, the software simulates crosses between animals with particular characteristics. As in a real genetics lab, users design their own procedures, deciding how many matings will provide enough evidence to deduce how the trait is passed on. The exercises challenge students to recognize not only simple dominant traits but also more complex types of transmission, such as sex linkage and incomplete dominance. Although the problems illustrate real inheritance patterns, they use hypothetical traits, so students can't track down the answers on the Web.



intro.bio.umb.edu/VGL/index.htm

RESOURCES

The 17-Year Itch

The last time 17-year cicadas swarmed in much of the central and eastern United States, the Iran Contra hearings were roiling the country and big hair was in. From New York to Georgia to Illinois, the red-eyed insects will soon be clambering out of their subterranean lairs, and they'll be setting the air athrob with their droning love songs. Find out more about periodical cicadas' odd existence at this page hosted by the University of Michigan.* Read the life story of *Magicicada septendecim* (left) and other periodical varieties, which feed on plant roots for 13 or 17 years before surfacing en masse to mate, lay eggs and, a month later, die. Range maps and a calendar show when and where these outbursts will occur. The cohort that emerges this spring, known as Brood X, is the largest and most widespread of the 17-year varieties. You can also eavesdrop on cicada courtship by listening to recordings of males' strident songs and the females' come-hither "wing flick" signal.



The creators of this page also contributed to Cicada Central,† sponsored by the University of Connecticut in Storrs. The site features an illustrated guide to New Zealand cicadas and accounts of select North American species. If you want an unusual way to celebrate the cicada, cook up some Cicada-Rhubarb Pie or El Chirper Tacos using the recipes provided at this University of Maryland site.‡

* insects.ummz.lsa.umich.edu/fauna/michigan_cicadas/Periodical

† collections2.eeb.uconn.edu/collections/cicadacentral

‡ www.urhome.umd.edu/newsdesk/scitech/cicadas.cfm

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

SOFTWARE: Desktop Genetics Lab

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