

Classroom Technology Reviews

Richard Duhrkopf Rachel Hays

Department Editors

Six Experimental Organisms: A Multimedia Study. 1997. Harvey F. Lodish, Ed. Cogito Learning Media, Inc. (20 Exchange Place, 44th floor, New York, NY 10005-3201; <http://www.cogitomedia.com>; (800) 938-4465). Purchase \$499.

System Requirements

IBM

Minimum 486 with a minimum of 12 MB of RAM

Macintosh

LC 475 or other model with 040 processor or higher

System 7.1 or later

Minimum 12 MB of RAM



The expansion of our knowledge of cell, molecular and developmental biology derives from scientific use of several well studied organisms: bacteriophage lambda, the yeast *Saccharomyces cerevisiae*, the nematode worm *Caenorhabditis elegans*, the fruit fly *Drosophila melanogaster*, the flowering plants *Arabidopsis thaliana*, and the mouse. This well written CD-ROM explains why each species was chosen as a model for development and genetic research, what types of research questions are being asked, medical applications, and an overview of the history and biology of the species. It also includes a good, clear explanation of the practical considerations for working with the organisms, including breeding, raising, and the type of techniques necessary to do the research.

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Each organism is discussed thoroughly from its life history and lab care to the questions being investigated through its use. Imbedded in the discussion are excellent images of researchers, technique, electron micrographs, and animations. There are many movie and sound clips, but most are of scientists speaking about their research and its implications. The speakers are not always identified. The topics are well laid out and organized with hyperlinks to an excellent glossary.


Clear and cogently discussed topics include: mechanisms of control of body plant development, genetic control of immune function, programmed cell death and applications to cancer research, gene expression and regulatory proteins, cell division and the control of the cell cycle. This material would be appropriate for advanced high school students or college students, even graduate students, working with a course that emphasized scientific investigation. It would be an excellent means of introducing students to the types of research that have been and continue to be pursued by scientists.

The video clips of talking heads, while interesting, are not the best use of video space. Only a handful of animations demonstrate some phenomenon. My primary interest in classroom computer use is interactive exercises, so for me, a large and glaring flaw in this CD is lack of interactivity. Yes, you do need to reveal different images, but that is hardly different than turning the page of a textbook or published article. I would like to have seen more animated demonstrations of molecular and cellular phenomenon and opportunities for students to participate and experiment with the material. It is, however, a great resource, acting as six major references in a single CD, and would serve as a great library reference. The material contained in the CD is available only in part of the alternate version of six separate videos, but in this format is more accessible outside a classroom setting. The CD also has the advantage of easy accessibility to

different parts of the material and more resources.

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Exploring the Diversity of Life. 1997. Environmental Media Corporation (PO Box 99, Beaufort, SC 29901-0099; www.envmedia.com; (800) 368-3382). Purchase \$99.95.

 Two video cassettes contain five 10-minute presentations each. The programs are intended for students in grades 4 through 8. A brief presentation guide accompanies the videos.

Each program explores an aspect of the diversity theme. Program 1, *A World of Difference*, introduces in broad terms the concepts of species, extinction, habitat and range as found in both temperate and tropical climates. The second program, *Go Climb a Tree*, compares differences in tree characteristics between temperate and tropical forests and the varieties of animals associated with trees in each location. The third program, *Life in Layers*, examines the divergent species and forest layers, shrubs, understory and canopy of temperate and tropical forests. Program 4, *Rain in the Forest*, looks at forest differences due to amount and seasonality of rainfall. Programs 5 and 6, *Insect Diversity and Butterfly Garden*, display and describe the diversity of the respective groups in relation to their habits. Program 7, *Not What They Seem*, illustrates

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mimicry as one type of adaptation. Program 8, Forest School, focuses on human adaptation and follows the livelihood of school children in a tropical forest. Program 9, Don't be Part of the Problem, and Program 10, Act with the Facts, call attention to environmental concerns and the importance of preparing oneself with sufficient and factual information before reaching any conclusions regarding maintenance and improvement of the environment in which we live.

The photography is excellent and there is sufficient exchange between animation and real life photography to maintain audience interest. The accompanying music is light and attention getting. The narrative is clear and simple for the intended audience. Key words are prominently flashed on the screen as the narrative defines them. Relatively long pauses between changing scenes may make the pace of the presentation a little slow for adult audiences. There is also some repetition of picture sequences from one program to another. For the projected age group, however, the pace is appropriate and the repetition desirable.


The small, 31-page pamphlet accompanying the program is well organized. It presents an overview of the

activities and lists learning objectives addressed. These objectives relate to the science guidelines for 5th and 8th grade as set forth by the American Association for the Advancement of Science Project 2061. Introductory activities, follow-up activities, and wrap-up activities, including long term related projects, are suggested for each program. These all seem to be well thought out and doable in most classrooms without extraordinary expense or time commitment. The last two programs on environmental quality would also serve nonscience classes well.

The programs are both informative and entertaining. They would enrich any class in which they are shown.

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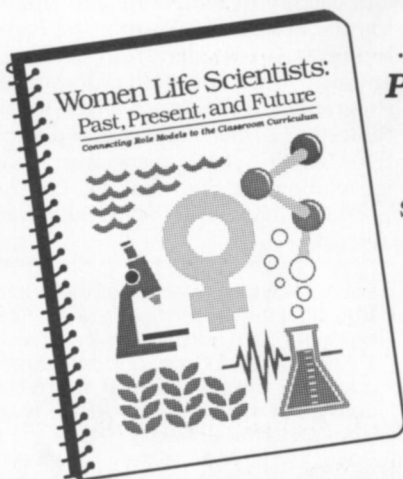
Gene Guns. 1998. Hawkhill Associates, Inc. (125 East Gilman St., Madison, WI 53703; (800) 422-4295; <http://www.hawkhill.com>). Videotape. 16 min. Purchase \$79.

 This program presents a description and demonstration of the particle bombardment method of gene transfer. It does so in the context of genetically improving barley

for resistance to a fungal pathogen using a resistance gene found in oats. The program features several scientists who describe the techniques used in gene transfer via particle bombardment, including recombinant plasmid construction, selective screening for putative transformants, and transgenic verification using PCR and gel electrophoresis. In addition, the program briefly presents microinjection of animal embryos and its applications, including production of pharmaceutical proteins in cow milk, creation of animal models for human diseases, and advances in organ transplantation research. The program concludes with a discussion of human gene therapy, using the recent example of the human vegF gene transferred to muscle cells for promoting the development of new blood vessels. This program is packaged with a booklet consisting of a text version of the narration.

Initially, the futuristic-style synthesized music, and the very simplistic and basic explanations of why organisms have DNA, give the impression that this program is designed for younger audiences (the program is intended for high school and college students.). While this program is very up-to-date, it unfortunately suffers

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