

allowed to proceed to the next step. They must also follow safety procedures such as wearing goggles, gloves, and lab coat. If students have trouble, they may receive hints by returning to their offices and “dialing” the hint line on their desk phones. The interface is a simple “click and drag” format with which most students are probably already familiar. Moving the cursor over objects provides the names of objects, and clicking on them puts them into an inventory for use.

After processing the evidence, students analyze their results and try to solve the crime. A nice touch of the program is that there are different endings that can be set: a whole class can come to the same ending or each student can arrive at a random ending. Students are told if their solution to the crime is correct and can read a police report piecing together the details of the crime.

I highly recommend this program as a way to help students learn important molecular biology techniques. The format is easy to use, provides an interesting storyline and a great deal of information. In addition to teaching the techniques themselves, it reinforces the importance of reading background materials, following lab procedures and lab safety. The only issue this reviewer has is with the music, which cannot be turned off from inside the program. I could imagine a computer lab full of students, with the ensuing noise quite loud and annoying. The sound can, of course, be turned off on the computer itself, but having the option in the program itself would be nice. Other than that I see no reason not to recommend this program. The built-in assessment, ability to save episodes and return to them later, and the many settings for endings makes this a great tool for any high school or college biology teacher.

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ENVIRONMENTAL SCIENCE

Insecticide Advances. (2001). Produced by London Television Services. Distributed by Chip Taylor Communications, 2 East View Drive, Derry, NH 03038. For pricing or order information, contact (800) 876-CHIP or e-mail: sales@chiptaylor.com. Available in VHS and DVD format. Running Time: 30 minutes.

The lengthy (about five minutes) introduction provides an excellent general statement regarding evolution and, more specifically, the evolution of biological resistance to pesticides in insects. It identifies the benefits of using natural products, for example spider poisons, since they have a high degree of species specificity and are biodegradable. The introduction and, actually, the entire video does a nice job of showing how scientific disciplines work together – for example, it begins with a chemist using chromatography and a gas spectrophotometer to discover which proteins are present in a spider poison, then the use of proteomics to relate the protein to the structure of the DNA, moving on to recombinant DNA, and the use of an appropriate viral vector to inoculate the insect. It offers a vehicle for teaching high school students the importance of studying all of the content areas in science in order to have a superior understanding of any one area.

The video jacket mentioned that there were five examples, but my copy had four and they were not all the same as the ones listed on the jacket. The first one, *No Flies on Me*, discussed how house flies could be a disaster to a pig farm – and then went on to show how the use of nematodes (that infect the flies and act as a vector for a bacterium that kills them) could be used to safely rid the piglet areas of these pestilent, disease-carrying flies.

Next came *Locust Killers*; this demonstrated the use of a fungus that could be sprayed on locusts that were devastating crops in Nigeria and Tunisia. The next really showed how not only scientists, but also engineers are important to the development of tools to control insects more effectively. How can you clean out chemical tanks without tremendous waste of water and pollution of either the ground or water sources? The video showed an ingenious invention that solved these problems. It ends showing how scientists had tried to save a forest from caterpillar destruction years ago only to discover that they had destroyed the complex balance in the ecosystem by mass destruction of all the insects in the area. The second infection was treated with a biological pesticide and a massive reduction in the amount used by redesigning (again, thanks to the engineers) the sprayers to atomize the toxin.

This is a worthwhile video, if only for the introduction. It is set up so that the instructor can easily stop along various points to show exactly what he/she wants to cover to lead into an interesting discussion about evolution, ecology, and/or the scientific process.

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FOOD SCIENCE

Science and Our Food Supply: Investigating Food Safety from Farm to Table. (2001). Produced by the National Science Teachers Association and the Food and Drug Administration. Free. Requests can be made to NSTA, 1840 Wilson Boulevard, Arlington, VA 22201-3000, or Fax to 1-888-433-0526; also by visiting www.nsta.org/professionalinfo/. Distributed by Blue Plate Productions, New York, NY.

Package Contents:

- Video - *Dr. X and the Quest for Food Safety*
- Teacher's Guide for Middle Level Science Classrooms
- Teacher's Guide for High School Science Classrooms
- Food Safety A to Z Reference Guide

Do you know the 4 Cs to food safety? If not, then perhaps you should view *Dr. X and the Quest for Food Safety* produced jointly by NSTA and the FDA. This video program takes the viewer on an adventure with "Dr. X," the food scientist, whose job it is to make sure that food safety is followed. With his trusty *bacteriometer*, Dr. X travels the globe looking for violations of food safety. Broken into five short modules, this program looks at all the possible places where bacteria can impact food production. In the first segment, "Understanding Bacteria," Dr. X states that bacteria don't slow down for anyone and interviews an actual specimen of *E. coli*. He rattles off the scientific names of the 12 most unwanted bacteria and explains how and why they are considered pathogens.

The second part takes Dr. X to the farm where we learn about how bacteria can enter the food supply and what scientists are doing to reduce the amount that does. One method discussed is that of competitive exclusion. By placing good bacteria into young chickens, bad bacteria is prevented from infecting them because there isn't any room. As these chickens grow, the good bacteria grow with them, keeping them safe to enter the food supply.

Module 3 provides a discussion of processing and transportation. Dr. X interviews a scientist who talks about different methods of pasteurization. He explains how milk and orange juice are super-

heated to kill the bacteria, and goes on to explain the problems encountered with pasteurizing eggs. Module 4 occurs at the retail store where many products are refrigerated or kept cool to keep bacteria from growing. Dr. X explains that bacteria have an optimal growth temperature; being too hot or too cold will prevent their growth.

The final segment of this video discusses new technologies developed to make the food supply safer. One such method is called "PulseNet." This is a database that compares microorganisms from different places to see if they have a common ancestor. This database contains a DNA fingerprint of each type of bacteria so that they can be compared. The other new technology shown uses a 10,000 psi explosive to tenderize meat. The explosion breaks the cell membranes in the tissue to make the meat more tender.

Science and Our Food Supply is an interesting and entertaining program that would be ideal for either a middle school or high school science curriculum that includes bacteria. The teacher's guides come chock full of activities for students of all levels. Many of these require that bacteria be grown in the laboratory which may not be possible if proper antiseptic conditions cannot be maintained (i.e., autoclave). Also, following with the current trend to get students interested in science, the end of the video has a segment called the "Inside Scoop," where the scientists who have appeared in the film are interviewed and asked questions like, "What do you like most about your career?" and "Why did you go into science?" The reference guide has a short section where students can read about "food safety experts in action."

Oh, just in case you forgot, the 4 Cs of food safety are cook (it breaks the cell walls of the bacteria so they can't reproduce), chill (it

slows metabolism), clean (removes bacteria), and combat cross contamination (prevents from spreading). Remember, the responsibility for food safety is in your hands!

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BIOGRAPHY

Secret of Photo 51. (2003). (VHS video). Written, produced, and directed by Gary Glassman and narrated by Sigourney Weaver. A NOVA production by Providence Pictures, Inc. for WGBH/Boston in association with the British Broadcasting Corporation. For ordering information, call (800) 949-8670; Fax (802) 864-9846; or online: www.shop.wgbh.org. Running time: 60 minutes.

This video delves into the controversy surrounding Rosalind Franklin and her contribution to the discovery of the structure of DNA. The video begins by describing Franklin's childhood and family background, detailing her love of memory games and solving mathematical problems. Included are interviews with two of her classmates and lifelong friends, who describe Franklin as an excellent athlete and scholar. The author, Brenda Maddox, who wrote a recent biography (*Rosalind Franklin: The Dark Lady of DNA*), also contributes information about Franklin's personal and academic life throughout the video. When Rosalind Franklin finished her degree from Cambridge, she decided to help out the war effort in Britain, doing research on coal and designing a better gas mask. After her gas mask work, she accepted a research position in Paris. In the video, her friend Vittorio Luzzati recalls how she loved Paris and