

JOSÉ VÁZQUEZ, DEPARTMENT EDITOR

AV & Software Reviews

HUMAN PHYSIOLOGY

Interactions: Exploring the Functions of the Human Body. (2003). CD-ROM. John Wiley & Sons, Inc. www.wiley.com/college/apcentral.

PC System Requirements:

- Pentium 166Mhz or higher
- 32 MB RAM
- 4x speed CD-ROM Drive
- 800 x 600 screen resolution in color mode
- Windows 95, 98, ME, NT, 2000, or XP
- Windows compatible sound card
- Internet Explorer v5.0 or above, or Netscape v4.7x

MAC System Requirements:

- PowerPC G3/233Mhz
- 64 MB RAM
- 4x speed CD-ROM drive
- 800 x 600 resolution, 256 colors
- Mac OS 8.1 and 9.x
- Netscape v4.7x

JOSÉ VÁZQUEZ is a Professor of Science in the General Studies Program at New York University. He holds an undergraduate degree from the University of Puerto Rico and a graduate degree from the University of Pennsylvania. His teaching experience ranges from elementary school to college level. His predominant passion in education is teaching science (particularly genetics) to gifted students. His address is: Shimkin Hall 327, NYU, 50 W. 4th St., New York, NY 10012; e-mail: jrv2@nyu.edu.

Energy Acquisition and Use: The Digestive System and Metabolism is an in-depth look at how the body obtains energy and how it is processed. To begin, this CD-ROM requires that users install the necessary components and then restart their machine. Upon startup, the program asks that first time users create a "new user" account by selecting a user name and password. This is only necessary the first time the CD is used. After creating this account, the CD automatically launches the Web browser and brings the user to the splash screen. From here the user is free to select where he/she wants to go from a series of menus at the top of the screen.

The best place to start is the "Table of Contents," as this gives a listing of all the main topics that are examined on the CD-ROM. Such topics include: "Digestive System Anatomy," "Digestive System Histology," "Metabolism," "The Role of Nutrients," and "Disruption of Homeostasis." Each of these include a wonderful assortment of drawings that exemplify the concepts in a superior manner. When the mouse is moved over a certain label on a drawing, the function of that particular structure appears at the bottom of the screen. It also gets highlighted on the diagram, making it very easy for the user to see where the structure is located.

The animations are excellent. They provide narration while the important concepts are bulleted on the side of the screen. When the content is finished, the user is then directed

to click on a certain part of the screen to go to the next topic. The user can also manually advance to the next topic by clicking on a menu at the bottom of the screen.

In the "Metabolism" section, the viewer is given a plethora of information about nutrients and how the body processes them. Protein, carbohydrate, lipid, and nucleic acid metabolism are discussed in detail. There is also a review of cellular respiration and ATP production. While the content here does get a bit excessive, it still provides excellent coverage of these most important topics.

Within each main topic there is also a section titled, "Concepts and Connections." Here the viewer partakes in a series of interactive quizzes to check his/her understanding. For example, in the "Digestive System," there is a quiz titled "Digestive Enzyme Activity." Here the user must select the correct enzyme from a list to complete the phase of digestion. In another titled, "Match the Movement," the user must follow a food particle down the GI tract, labeling what is happening to it at each step. The users are able to get instant feedback because the CD either dings if correct or buzzes if incorrect. Viewers can then go back and check their answers to see what went wrong.

The greatest thing about this CD is the section titled "Homeostatic Imbalance." Here, the viewer is given the details of

a case study. The symptoms given can be compared to those of a normal person in terms of their effects on chemistry, cells, tissues, organs, and organ systems. When finished, the viewer takes an interactive quiz to see if he/she has discovered what the case study scenario's problem is. This section ties all the other information on the CD together, giving a true-to-life example for the viewer.

Overall, this is one the best physiology CD-ROMs created in quite some time. It is appropriate for upper level high school students taking a Human Anatomy and Physiology course. While it is jam packed with information, it is presented in an interesting and user-friendly manner. Many Anatomy & Physiology textbooks are cumbersome with the amount of terminology and detail they present, and students often feel overwhelmed. **Energy Acquisition and Use: The Digestive System and Metabolism** provides students with a simple, yet very complete way of learning the intricacies of the digestive system.

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Interactions: Exploring the Functions of the Human Body. See previous description.

Support and Movement is another installment of the **Interactions** series that focuses on the skeletal and muscular systems. For each system there are diagrams that will display labels when the cursor is moved over them. There are also animated narrations.

A menu bar found at the top of each screen displays navigation buttons. The students may browse the contents, search by category, or simply click "next" and "previous" until they complete the system. Under the

"Concepts" button are a series of interactive concept maps that can be printed. The list of concepts is provided on the right side of the screen and students are instructed to drag them to the proper location in the concept map. Concepts can only successfully be dropped in the correct spot, so the students learn by doing. Complex physiological functions such as "Joint Classification," "Blood Calcium Regulation," and "Events at the Neuromuscular Junction" are included in the Concept Maps. Animations cover "Endochondral vs. Intramembranous Ossification" and "Control of Muscle Tension and Muscle Metabolism," among other things.

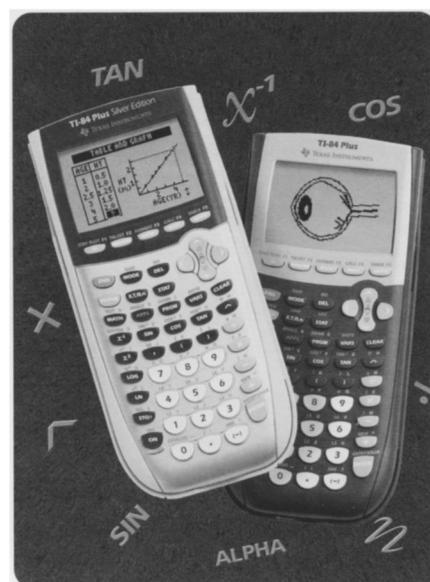
When a student logs in, he/she is warned against simply "closing the window" between visits or his/her progress will be lost. Nevertheless, a student would be able to work at his/her own pace. Many of the concepts presented are ones my students find challenging. This program would be an excellent reinforcement for them.

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QUANTITATIVE BIOLOGY

TI-84 Plus Silver Edition. (2003). Texas Instruments. \$129.99. May be purchased at major retail and office superstores. For additional information, visit www.education.ti.com.

The TI-84 Plus Silver Edition is the latest graphing calculator of the Texas Instruments family. Some of the newest additions are: built-in USB port; more memory (up to 30 applications); improved, higher contrast display; and built-in clock with date and time display. For the



TI-84 Plus Silver Edition.

biology classroom this will represent an important technological addition, since it is preloaded with ScienceTools programs to analyze biological data and visualize processes. For instance, the **StudyCards™** feature allows the student to create flash cards for any topic or download prepared flash cards from the TI Web site. Additionally, the **TI Interactive!™** software allows teachers and students to download data and pictures from the Internet for further analysis, as well as create formatted text, graphics, and movies. It also allows connectivity with other TI technology to send and receive data.

In this age of fast technological advances and more rigorous, mandated science standards, the TI-84 Plus Silver Edition allows the teacher to keep up with the fast pace of science and technology while satisfying curricular requirements. Innovation may be the buzzword in today's science classroom, and here is an innovative tool to simplify the teaching and learning of biology.

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