### 8:30am - 9:45am

continued

### Homework Assignments that Engage Students, Foster Creativity, and Teach Content

Mesilla (Capacity: 100) Hands-On Workshop • General Biology • JH HS

Here are some favorite assignments that often have students asking for more. Get a chance to try your own song writing, model building, puzzle solving, and advertisement writing as we think about biology content in a variety of ways. Handouts will be provided.

 Susan Plati, Brookline HS, Brookline, MA

### Organelle of the Day

Nambe (Capacity: 40) Hands-On Workshop • General Biology • GA

Learn and practice a new approach to microscopes to learn about cell structure. Student and teacher versions of all activities will be available.

 Whitney Hagins and Kenneth Bateman, Lexington HS, Lexington, MA

# Model Building and Use in Teaching

Navajo (Capacity: 40) Demonstration • Instr.Strategies & Technologies • GA

Learn how to design, build, and use inexpensive, easy-to-make models that help students visualize organisms and concepts.

 Joan Bradley, The Ohio State University, Mansfield, OH

# Genes vs. Jeans: Cracking the Code of Genetics

*Pecos* (Capacity: 75) Hands-On Workshop • Genetics • E JH

Engage students in the wonders of genetics using Skittles<sup>®</sup> to show mitosis and meiosis, code-breaking skills,

and real "jeans" to determine your genetic makeup.

 Camille Stegman and Connie Robertson, Virginia City Middle School, Virginia City, NV; Jennifer Willden, Hugh Gallagher Elementary, Virginia City, NV

### Using Ecological Techniques To Simulate Natural Selection

*Picuris* (Capacity: 100) Hands-On Workshop • Evolution • HS 2C

Participants will use a predator/prey dynamic, the line intercept method for measuring plant cover, and the chisquare goodness-of-fit test to investigate natural selection.

 Paul Strode, Boulder HS, Boulder, CO; Tara Cardoza, University of Colorado, Boulder, CO

### Do I Have To Go, Too? Student-Involved Parent Conferences

Ruidoso (Capacity: 80) Hands-On Workshop • Instr.Strategies & Technologies • HS

Step-by-step approach for developing effective student-involved parent conferences designed to stimulate student interest in their own progress as they tell their own academic story. This format can be adapted to nearly any parent-teacher conference setting and becomes a framework for improved communication between students, parents, and their teachers.

 Sandra Largen and Kathleen Luczynski, Downers Grove South HS, Downers Grove, IL

# BIOZONE Student Workbooks & Presentation Media

Sandia (Capacity: 58) Exhibitor Demonstration • General Biology • HS 4C

BIOZONE's critically acclaimed biology student workbooks will be showcased by the author. Using highly visual content and a write-on format, students are able to efficiently explore key biological concepts. Biozone's new Presentation Media titles (Ecology, Health & Disease, Genetics & Evolution) will be demonstrated. FREE samples of the workbooks will be provided to those attending this session.

Richard Allan, BIOZONE, Hamilton, NZ

### **TGT-Cooperative Review**

San Miguel (Capacity: 150) Hands-On Workshop • Instr.Strategies & Technologies • GA

- TGT is a strategy whereby academically heterogeneous study groups work cooperatively to master material, then "compete" in academically homogeneous groups to earn points for their study group. This interactive workshop will examine TGT and how it can be used for review and homework reinforcement.
- Meg O'Mahony, University of Toronto Schools, Toronto, ON

### WOW Biology: Part V

Santa Ana (Capacity: 60) Hands-On Workshop • General Biology • JH HS

- Join the Mississippi Association of Biology Educators and the Jackson Public School District as they share some of their favorite science literacy and required lab activities.
- Madelene Loftin, Wingfield HS, Jackson, MS; Mary Branson, Callaway HS, Jackson, MS; Jammy Hemphill, Forest Hill HS, Jackson, MS

### Forensic Biology: The Perfect Fit

*Taos* (Capacity: 100) Hands-On Workshop • General Biology • JH HS

One size doesn't fit all! Explore three options for incorporating motivational forensic activities. Meet the *National Science Education Standards* while awakening student interest. Activities and handouts will be available.

 Karen O'Neil, Pioneer Valley Regional School, Northfield, MA; Kate Dollard, Northampton HS, Northampton, MA

### Teaching the History of Evolution

*Tesuque* (Capacity: 60) Paper • Evolution • HS GA

Come learn how the use of a historical perspective to teach evolution gives students an appreciation for the nature of science and an understanding of evolution's influence.

 Carolyn Bradley, University High School of Indiana, Carmel, IN

# Virtual Dissection: The Best of the Best

Tijeras (Capacity: 45)

Demonstration • General Biology • HS

A pathologist takes you on a guided tour of the best virtual dissection software: *Digital Frog 2* and *DryLab Fetal Pig.* Borrow them **free** for your class.

 Nancy Harrison, Scripps Mercy Hospital Chula Vista, San Diego, CA

# *Biology, The Living Science:* Buying into Standardized Achievement Tests and Having Fun

Zuni (Capacity: 50) Demonstration • General Biology • HS GA

*Biology, the Living Science*, addresses strategies for those who are most at risk. Both pedagogy and sample lessons will be presented that ensure all students succeed in biology.

 Christyna Laubach and Beverly Brunette, Lenox Middle and High School, Lenox, MA

### 8:30am - 10:00am

### BIO-RAD Genes in a Bottle<sup>™</sup> Kit

*Cimarron* (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

Can I see your DNA? The first step in many research applications is isolating the DNA sample. Introduce your students to molecular biology with their own DNA. In this hands-on workshop you will extract the DNA from your own cheek cells then watch it precipitate from solution as floating white strands. Collect and transfer the DNA strands to create a fashionable necklace. This simple procedure is used to extract DNA from many different organisms for a variety of real research applications. Bring only your imagination and take home your own DNA – in a necklace. Another BIO-RAD lab your students will never forget! Learn key background and how to prep the lab.

 Sherri Andrews, BIO-RAD, Hercules, CA

### 8:30am - 11:30am

### Introduction to Biotechnology

Apache (Capacity: 45) Hands-On Workshop • Biotechnology • HS

New to biotechnology? Come learn the basic labs and practice the techniques taught in every beginning biotechnology course. Join us at any time during the workshop!

 Elizabeth Paine and Whitney Hagins, Carolina Biological Supply Company, Burlington, NC

### 8:30am - 4:00pm

# Macroevolution: Evolution Above the Species Level

Brazos (Capacity: 200) Symposium • Evolution • GA

How do new species and higher taxa originate? How do major innovations, such as sexual reproduction; flowers; and insect, bird, and bat wings, evolve? Basic mechanisms of microevolution (evolutionary change below the species level, among populations and within species) can produce macroevolutionary change (the evolution of novel traits, of species, and of lineages) if given enough time. Macroevolutionary studies explore the evolutionary forces and events that generate the characteristic features of new taxa, the radiations of lineages and their extinctions, and the evolutionary patterns produced by physical processes (e.g., continental drift) on living and extinct organisms.

Presentations in this symposium will provide current information about macroevolutionary processes, the distinctions between and the interactions of micro- and macroevolution, the development and evolution of "key innovations" and major lineages of organisms, and the evidence for these processes. Classroom activities developed by BSCS will be integrated into the program so that educators can gain hands-on experience teaching about macroevolution and learn new ways to improve student understanding of the concept.

 Philip Gingerich, University of Michigan, Ann Arbor, MI; Nicole King, University of California, Berkeley, CA; Scott Hodges, University of California, Santa Barbara, CA; Jeff Levinton, State University of New York at Stony Brook, Stony Brook, NY; David Jablonski, University of Chicago, Chicago, IL; Nipam Patel, University of California, Berkley, CA

### 9:00am - 11:30am

### BIO-RAD Crime Scene Investigator PCR Basics<sup>™</sup> Kit

Dona Ana (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

Which human DNA sequences are used in crime scene investigations and why? In this workshop you will assume the role of crime scene investigator. You will learn which human DNA sequences are used by forensic scientists and how trace amounts of DNA can be used to identify a person. You will learn to use the polymerase chain reaction (PCR) and gel electrophoresis to identify which of a number of suspects can be exonerated – based on DNA evidence. This hands-on workshop teaches the basics of polymerase chain reaction (PCR), gel electrophoresis, and statistics of chance associated with modern DNA fingerprinting. Learn key background and how to prep the lab. Do exactly what your students will do.

 Stan Hitomi and Kirk Brown, BIO-RAD, Hercules, CA

### 10:00am - 11:15am

### **General Session**

Kiva Auditorium

### Alejandro Sánchez Alvarado University of Utah School of Medicine Salt Lake City, UT

Almost single-handedly, Alejandro Sánchez Alvarado has established a freshwater flatworm (an organism called *Schmidtea mediterranea*, or planaria) as a powerful new model system to study the molecular mechanics of regeneration. By identifying and characterizing regeneration at the molecular level, he hopes to gain a better understanding of how higher organisms, including humans, develop biologically. Alvarado is also Professor of Neurobiology and Anatomy at the University of Utah School of Medicine.

### 10:30am - Noon

### BIO-RAD Genes in a Bottle<sup>™</sup> Kit

*Cimarron* (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

Can I see your DNA? The first step in many research applications is isolating the DNA sample. Introduce your students to molecular biology with their own DNA. In this hands-on workshop you will extract the DNA from your own cheek cells, then watch it precipitate from solution as floating white strands. Collect and transfer the DNA strands to create a fashionable necklace. This simple procedure is used to extract DNA from many different organisms for a variety of real research applications. Bring only your imagination and take home your own DNA - in a necklace. Another BIO-RAD lab your students will never forget! Learn key background and how to prep the lab.

 Sherri Andrews, BIO-RAD, Hercules, CA

### 11:30am - 12:30pm

### NABT Town Meeting

Kiva

Now is your chance to INTERACT with the NABT Board of Directors. Now is

the time to raise your questions and concerns and to hear those of your colleagues. Ideas are welcome as well.

### 12:30pm - 1:00pm

Educate, Motivate, and Stimulate with "Active Learning Segments" *Acoma* (Capacity: 71) Demonstration • Molecular & Cell Biology • 2C 4C

Active student participation is the catalyst of a successful collegiate experience. Our "Active Learning Segments" focus on the EMS principles of teaching: Educate, Motivate, and Stimulate.

 Cathy Donald-Whitney, Collin County Community College District
CPC, McKinney, TX; Mary Weis, Collin County Community College District - SCC, Plano, TX

### The Little Worm that Could

Apache (Capacity: 60) Paper • Molecular & Cell Biology • 2C

Learn about the use of the nematode *C. elegans* for the purpose of characterizing a group of polysaccharides, glycosaminoglycans (GAGs), that are found in amyloidoses such as Alzheimer Disease.

 Carla Beeber, Kingsborough Community College, Brooklyn, NY

### Using the Web To Teach Biology

Aztec (Capacity: 114) Demonstration • General Biology • HS

The Internet offers a powerful tool to biology teachers. This seminar will explore a variety of online resources available to the biology classroom.

 Jennifer Albanese, Salesianum School, Wilmington, DE

### **Biodiversity and Biological Filtering in a Southeast Swamp** *Cochiti* (Capacity: 72)

Paper • Environment/Ecology • HS 4C

Research was conducted in order to establish the biodiversity in a unique swamp environment that is designed to purify water after primary and secondary treatment.

 Barry Thompson, Augusta State University, Augusta, GA; Lindsay Belcher, Edmund Burke Academy, Waynesboro, GA; Rhead Smart, Vantage Point Campus HS, Thornton, CO

### High School Students' Mental Models of Zoos: Are Zoos Conservation Organizations?

*Isleta* (Capacity: 45) Paper • Environment/Ecology • HS 4C

Determining a student's ZOOIQ may help educators decide upon the level of information that needs to be disseminated for a zoo visit.

 Patricia Patrick, University of North Carolina, Greensboro, NC

### Teaching Evolution in a Potentially Hostile Environment

*Jemez* (Capacity: 40) Paper • Evolution • HS 4C

> A presentation of research on the use of the creation/evolution continuum to effect changes in student attitudes about evolution. Other resources for teaching evolution will be reviewed.

 Mark Bland, University of Central Arkansas, Conway, AR

### Effects of the *NSES* on Attitudes Toward Science in Middle School Girls

Laguna (Capacity: 45)

Paper • Gender/Multicultural Issues • JH GA

Explore the results of a study on middle school girls' attitudes toward science in classrooms where teachers implement the *National Science Education Standards*.

 Carolyn Hayes, Central Indiana Educational Service Center, Indianapolis, IN

### Engaging Each Student in Large Lectures with Wireless Student Response Units

Nambe (Capacity: 40)

Paper • Instr.Strategies & Technologies • 2C 4C

Participants will use remote "clickers" as they discuss this interactive technology and describe its impact on student attitudes and content acquisition in six biology courses.

 Ralph Preszler, Angus Dawe, Charles Shuster, and Michele Shuster, New Mexico State University, Las Cruces, NM

### Using Emotional Intelligence as a Basis for Classroom Management

Sandia (Capacity: 50)

Paper • Instr.Strategies & Technologies • JH HS

Quantitative and qualitative data will be presented to demonstrate the effectiveness of using emotional intelligence strategies to manage negative student behavior.

 Susan Sernoffsky, Manchester HS, Manchester, CT

### Classroom Discussions: Getting Your Students To Actively Think During Class

Santa Domingo (Capacity: 50) Demonstration • Instr.Strategies & Technologies • HS

Learn effective techniques/strategies to lead a better classroom discussion and

help your students learn more.

 Julie Baylor, Barrington HS, Barrington, IL

### **The Biology Talent Show: The "Do-Re-Mi" of Life on Display** *Tesuque* (Capacity: 60)

Paper • General Biology • 2C 4C

An overview of a unique program in a biology setting: examples of the types of projects performed and produced by students and faculty in relation to topics studied.

 Fardad Firooznia, Lion Technology Inc., Lafayette, NJ

# Why Should a Science Teacher Visit Japan?

*Tijeras* (Capacity: 45) Paper • Teacher Prep/Professional Development • JH GA

Come and find out how you can experience science teaching in a Japanese school with the Japan Fulbright Memorial Fund Master Teachers Program.

 Shauneen Giudice, Delmar Middle and Senior HS, Salisbury, MD

### 1:00pm - 2:30pm

### BIO-RAD ELISA Immuno Explorer<sup>TM</sup> Kit

Dona Ana (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

Biology's magic bullet? Unleash nature's tool kit and the power of antibody specificity to explore health science and immunology. In this hands-on workshop you will perform an ELISA (enzymelinked immunosorbent assay), a real world antibody-based assay used to diagnose HIV/AIDS or bird flu, and to detect the molecular markers of cancer, pregnancy, and drug use. Germs spread via human contact, water, food, and the air – whether they emerge naturally or through acts of aggression. Learn to simulate a disease outbreak in your classroom and use ELISA to detect and track it. For biology, physiology, anatomy, and

health science courses. Learn key background and how to prep the lab

 Stan Hitomi and Kirk Brown, BIO-RAD, Hercules, CA

### 1:00pm - 3:30pm

### BIO-RAD pGLO<sup>™</sup> Bacterial Transformation and Green Fluorescent Protein Purification Kits

*Cimarron* (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

Genetic engineering has led to a phenomenal explosion of new health treatments, agricultural applications, and environmental solutions. In this handson workshop create your own genetically modified organisms and designer proteins and explore the mechanisms of gene expressions and genetic selection. Transform bacteria with bioluminescent jellyfish gene that codes for the Green Fluorescent Protein (GFP); then purify GFP from transformed bacteria using a key process in biomanufacturing, chromatography! Learn key background and how to prep the lab. (AP Biology Lab 6)

 Sherri Andrews, BIO-RAD, Hercules, CA

### 1:15pm - 2:30pm

### Mass Extinctions and Global Climate Change: Integrating the Nature of Science and Biology Acoma (Capacity: 71)

Paper • General Biology • HS 4C

An examination of global climate change and the nature of science can provide biology teachers with a vast amount of resources.

 Paul Narguizian, California State University, Los Angeles, CA

### 1:15pm - 2:30pm

continued

### Bird Flu Knocking on the Door: Molecular Stories from the CBM

Aztec (Capacity: 114) Hands-On Workshop • Molecular & Cell Biology • HS 2C

The hemagglutinin protein functions as an amazing molecular machine to initiate influenza virus infection. What's this got to do with an avian flu pandemic?

 Karen Deboer, Waukesha, WI;
Donna LaFlamme, St. Dominic School, Brookfield, WI

### Question First; Answer Last

*Cochiti* (Capacity: 72) Hands-On Workshop • Curr. Development/Supervision • HS

Allowing students to ask standardsinspired questions and develop inquiry activities of their own, before direct instruction provides them with the answers, and improves student performance.

 Ann Marie Wellhouse, River Valley HS, Campo, CA

### The Crittercam

*Galisteo* (Capacity: 100) Hands-On Workshop • Oceanography/ Marine Biology • HS

The "Crittercam," as featured on national television, is a unique tool that has enhanced behavioral research of marine mammals and birds, sharks, and sea turtles.

 Mike Heithaus, Holt, Rinehart and Winston, Austin, TX

### Buccal Smear Gram Stain: Gateway to Cytology

*Isleta* (Capacity: 47) Hands-On Workshop • General Biology • JH HS

One of the first skills students learn in studying cells is the difference between prokaryotes and eukaryotes. This lab activity allows students to simultaneously examine cells of both types from a familiar source: their own mouth.

 William Anderson, Unionville HS, Kennett Square, PA; Sandra Litvin, C.F. Patton MS, Kennett Square, PA

# Put Some Energy into Teaching Glycolysis!

*Jemez* (Capacity: 40) Demonstration • General Biology • HS 2C

Want a new and energetic way of teaching glycolysis? Tired of students blocking out all the chemistry? Make it fun, exciting, and loud in a way they won't soon forget. Handouts provided.

 Mary Dettman, Seminole Community College, Sanford, FL

### Epidemiology, ELISA, and HIV

La Cienega (Capacity: 90) Hands-On Workshop • Molecular & Cell Biology • HS

Participate in an infectious disease outbreak, then perform an enzyme linked immunosorbent assay (ELISA) and learn how this powerful technique is used as a diagnostic and research tool.

 Gen Nelson, Germantown Friends School, Philadelphia, PA; Scott MacClintic, The Loomis Chaffee School, Windsor, CT

### Population Growth and Sustainability: Have Your Students Do the Math

Laguna (Capacity: 45) Hands-On Workshop • Environment/ Ecology • HS 4C

Using guided inquiry, students calculate and discover relationships among growth rate variables and apply this knowledge to predict growth trends for developed and developing countries.

 John Rastovac, Loyola University Chicago, Chicago, IL

### The Brain-Friendly Biology Classroom

*Mesilla* (Capacity: 100) Hands-On Workshop • General Biology • JH HS Learn fun ways to incorporate current brain research into your classroom using activities and strategies intended to help energize your students while boosting student learning and retention.

 Tobi McMillan, Texas Tech University-HHMI, Lubbock, TX; Marianne Dobrovolny, Roosevelt HS, Lubbock, TX

### It Takes a College! Cooperating with Adjuncts for Safer Instruction *Nambe* (Capacity: 40)

Paper • Curr. Development/ Supervision • 2G • • • ED

Supervision • 2C **LED Containing** college faculties are often sharply divided between full time and adjunct. That makes our efforts toward better and safer instruction difficult. We'll introduce a new approach and materials to help every college faculty member build safe and sensible classroom environments.

Juliana Texley, Palm Beach
Community College, Boca Raton, FL

### Real World Learning Objects in Science, Math, Language Arts, and Technology

Navajo (Capacity: 40) Symposium • Teacher Prep/ Professional Development • 2C 4C

Experience firsthand the power of real world learning objects (RWLOs) to transform teaching and learning through effective technology-based instruction. These concise core instructional activities use real time data. telecollaborative learning, and primary source materials to improve student engagement. Through U.S. Department of Education funding under the PT3 Pathways project, faculty are currently developing and incorporating RWLOs into their preservice courses. Come find out how to utilize RWLOs from the Pathways RWLO Library in your classes.

 Becky Kapley, Cuyahoga Community College, Parma, OH; Sarah Mallory, La Grange College, La Grange, GA

### The Seven Daughters of Eve

Pecos (Capacity: 75) Hands-On Workshop • Genetics • HS

A "novel" idea has been kicked around for several years between the Science Department and the English Department. Let's really do some cross-curricula instruction. History and English do this. Math and Science do this. But Science and English?

 Christine McOmber and Mary Ann Eiserman, Lake Zurich HS, Lake Zurich, IL

### Modeling Life, Making Connections Between Living Organisms and Biology Class Content

Picuris (Capacity: 100) Hands-On Workshop • General Biology • JH HS

Learn how to help students conceptually understand the characteristics of living organisms and to connect biological concepts by constructing and modifying animal models.

 Austin Hitt, Coastal Carolina University, Conway, SC

### mc square: Brain Science for Better Learning

Ruidoso (Capacity: 80) Hands-On Workshop • Instr-Strategies & Technologies • HS GA

The nic Square is an ipod-like device for students that improves concentration and reduces stress by stimulating adaptation of the brain. Come try this unique learning tool used in Asia for 10 years. There will be a raffle at the workshop.

 Linda Samuels, The Science of Learning Center, Winthrop, MA

### Socratic Seminars in the Biology Classroom

San Miguel (Capacity: 150) Hands-On Workshop • Instr.Strategies & Technologies • HS 4C

Socratic seminars are question-driven, text-based discussions that are facilitated and structured. This session will  Lawrence Wakeford, Brown University, Providence, RI

### Middle School MicrobeWorld Activities

Santa Ana (Capacity: 60) Hands-On Workshop • General Biology • E JH

A hands-on workshop highlighting low tech, low cost microbiology activities for upper elementary and middle school students. Based upon the NABT publication, *MicrobeWorld Activities*.

 Diane Catron, Arden Trickey-Glassman, Lauren Asher, and Luke Reid-Grasso, Santa Fe Preparatory, Santa Fe, NM

### AP Biology Teachers' Open Forum

Santa Domingo (Capacity: 50) Symposium • Instr.Strategies & Technologies • HS

Join other AP Biology teachers and the AP Biology Test Development Committee for a discussion of the 2006 exam, AP Audit, AP Biology Redesign, and other issues and concerns.

 Ron Balsamo, Villanova University, Villanova, PA; Mike Basham,
El Dorado HS, Placerville, CA; John Lepri and Robert Cannon, University of North Carolina,
Greensboro, NC; Carolyn Schofield-Bronston, Robert E. Lee HS, Tyler, TX; John McMillian, Central HS,
Philadelphia, PA; Eileen Gregory,
Rollins College, Winter Park, FL

### Don't Toss the Lab Manual Out with the Bathwater: How To Incorporate Inquiry into Cookbook Labs

*Tesuque* (Capacity: 40) Hands-On Workshop • General Biology • HS 2C

Want to incorporate inquiry into labs without tossing the lab manual? Join us for an interactive session to change cookbook labs into inquiry-based investigations.  Betsy Morgan, Kingwood College, Kingwood, TX

### How To Make a School Nature Trail

*Tijeras* (Capacity: 45) Paper • Botany & Microbiology • GA

A step-by-step explanation of how we made our integrated botanical and geological nature trail. Learn how to write memorable interpretive signs. Free readability kit will be available.

 Jim Wandersee, Louisiana State University, Baton Rouge, LA; Renee Clary, Mississippi State University, Mississippi State, MS

### Evolution in Action: Modeling Insecticide Resistance in Mosquitoes

Zuni (Capacity: 50) Hands-On Workshop • Molecular & Cell Biology • HS 4C

Enzyme specificity, silent mutation, natural selection, and competitive inhibition will be modeled in this molecular story from the CBM. CDs and model lending information will be provided.

 Margaret Franzen, Pellissippi State Technical Community College, Knoxville, TN; Lynda Jones, Catlin Gabel School, Portland, OR

### 2:45pm - 4:00pm

### Inquiry-Based Experiments Using Red Flour Beetles

Acoma (Capacity: 71) Demonstration • Instr.Strategies & Technologies • JH HS

A description of inquiry-based experiments related to genetics, life cycles, and environmental science using red flour beetles. Participants will receive free strains.

– Peggy Brown, Newburg HS, Newburg, MO

### 2:45pm - 4:00pm

continued

### AP Biology Share-A-Thon

Aztec (Capacity: 100) Hands-On Workshop • Teacher Prep/ Professional Development • HS

Do you teach AP Biology? Come share your ideas and suggestions and get new ones! New and veteran teachers welcome. Contributions will be compiled and shared.

 Jennifer Heck, The Agnes Irwin School, Rosemont, PA

### Maintenance of Body Temperature: An Inquiry Laboratory for Introductory Biology

*Cochiti* (Capacity: 72)

Hands-On Workshop • Environment/ Ecology • 2C 4C

Join us to explore an inquiry lab exercise suitable for introductory biology courses. Participants will plan a project as if they were students.

 Janet Lanza, University of Arkansas, Little Rock, AR; Jim Winter, University of Arkansas, Little Rock, AR

### See into the Eye: Exploratorium Based Human Perception Activities

Galisteo (Capacity: 100) Hands-On Workshop • Physiology • JH HS

Dissect your own eye with simple, safe, and effective hands-on (eyes-on) activities to get a better view on human eye physiology.

 Eric Muller, Exploratorium Teacher Institute, San Francisco, CA

### A Scientific "Holistic" Approach to Nutrition and Health

Isleta (Capacity: 47) Paper • Human Health & Public Health • 2C 4C

Nutrition Health and Wellness is a new textbook edited with not only nursing and health science majors in mind but also edited for people who want to

learn the basics (including biology and some chemistry) about the food we eat and the fluids we drink.

 Abour Cherif and Bob Aron, DeVry University, Oakbrook Terrace, IL;
Dianne Jedlicka, The Art Institute of Chicago, Chicago, IL; Sujata Verma, Ivy Tech State College, Fort Wayne, IN; Frank Burrows, Pearson Custom Publishing, Olympia Fields, IL

### NSBRI's Series: From Outer Space to Inner Space – Life Science That's Out of This World La Cienega (Capacity: 90) Hands-On Workshop • General Biology • E JH

The National Space Biomedical Research Institute funded by NASA has research on sleep, muscles and bone, nutrition, and cardiovascular systems with applications for the Earth-bound.

 Sonia Rahmati Clayton, Barbara Tharp, and Deanne Erdmann, Baylor College of Medicine, Houston, TX

### Sickle Cell Anemia: Molecular Stories from the CBM

Laguna (Capacity: 45) Hands-On Workshop • Molecular & Cell Biology • HS 2C

Come learn about an innovative inquiry-based curriculum unit that uses physical models and other manipulative materials to explore sickle cell anemia, "the first molecular disease."

 Shannon Colton and Tim Herman, Milwaukee School of Engineering, Milwaukee, WI; Judy Weiss and Marisa Awodey Roberts, Whitefish Bay HS, Whitefish Bay, WI

### The Family Tree Project

Mesilla (Capacity: 100) Hands-On Workshop • Genetics • JH HS

A two-week outside assignment designed to assess students understanding of Mendelian Genetics and allow students to experience scientific discovery with original data collection.

 Bill McWeeny, Adams School, Castine, ME

### Microbial Activities in Biotechnology

Nambe (Capacity: 48) Hands-On Workshop • Biotechnology • JH HS

Stimulate inquiry activities through laboratory activities. Sophistication of activities is influenced by available materials, time, and teachers' comfort level. They are practical, using readily available local materials.

 John Fedors, Science Activities, Lincoln, CA

### NEURO-PALOOZA!!!

Navajo (Capacity: 42) Hands-On Workshop • Physiology • GA

- How do drugs, disease, and more affect brain function and perception? Explore these questions and more with all new hands-on activities from the Exploratorium.
- Karen Kalumuck, Exploratorium, San Francisco, CA

### Using Manipulative Materials To Teach Introductory Biology

Pecos (Capacity: 75) Hands-On Workshop • Instr.Strategies & Technologies • HS 2C

This session will provide rationale for and examples using manipulative materials to represent abstract biological concepts to improve student learning in Introductory Biology.

 Richard Grumbine, Landmark College, Putney, VT

### WOW Biology: Part IV

Picuris (Capacity: 100) Hands-On Workshop • General Biology • JH HS

Join the Mississippi Association of Biology Educators and the Jackson Public School District as they share some of their favorite hands-on and inquiry-based activities.

 Shelia Smith, Jackson Public Schools, Jackson, MS; Docia Generette and Windy Walker, Bailey Magnet HS, Jackson, MS; Tammy Cox, Provine HS, Jackson, MS **Texas Tried and Tested: Volume 2** *Ruidoso* (Capacity: 80) Hands-On Workshop • General Biology • HS

Join us for another collection of handson classroom activities designed to engage and inspire at-risk students in biology and environmental science. CD-ROM will be provided to participants.

 Matt Wells, Eileen Newland and Saundra Coffey, Cy-Springs HS, Cypress, TX

### Reinforcing Biological Concepts Through Models and Manipulatives

San Miguel (Capacity: 150) Hands-On Workshop • Instr.Strategies & Technologies • HS

In this make-and-take session, participants will construct several manipulatives and models to demonstrate concepts such as enzyme catalysis, operons, steroid hormones, and evolution.

- Debbie Richards, Bryan HS, Bryan, TX

### Bio-Rhythms: Use a Song as a Hook: It's More Fun Than the Book

Sandia (Capacity: 50) Demonstration • Instr.Strategies & Technologies • HS 4C

Have more fun and cover material faster and better by using biology songs and raps!

 Arthur Siebens, Woodrow Wilson HS, Washington, DC

### A Wild Rose Pot Pourri

Santa Ana (Capacity: 60) Hands-On Workshop • General Biology • HS

A group of teachers from Alberta providing their favorite activities and labs for differentiated instruction in high school biology classes.

 Kim Burley, Lindsay Thurber Comp HS, Red Deer, Alberta; Jayni Caldwell, Foothills Comp. HS, Okotoks, Alberta

### Cell Energetics: Let it Pump You Up!

Santa Domingo (Capacity: 50) Demonstration • Molecular & Cell Biology • JH HS

Cell respiration and photosynthesis are among the hardest topics to teach in biology. Join us for some of our favorite activities and teaching tips to get your students "energized."

 Angelique Biehl, Portage Northern HS, Portage, MI; Lynda Smith, Lakeshore HS, Stevensville, MI; Cheryl Hach, Kalamazoo Math and Science Center, Kalamazoo, MI

### Integrating Science and Math Through Inquiry

Taos (Capacity: 100) Hands-On Workshop • General Biology • JH HS

Explore simple hands-on activities that integrate science with math, and discuss methods to encourage studentinitiated inquiry. Curriculum materials will be provided.

 Elisa Palmer, Illinois State University, Normal, IL

### Hands-on Inquiry Learning Through Forensic Science Zuni (Capacity: 50)

Paper • Biotechnology • JH HS

An inquiry learning unit on forensic biotechnology that can be based on

either actual DNA gels or digitally-generated gel results.

 Phillip Danielson and James Platt, Denver University, Denver, CO

### 3:00pm - 4:30pm

### BIO-RAD ELISA Immuno Explorer<sup>TM</sup> Kit

Dona Ana (Capacity: 75) Exhibitor Demonstration • Biotechnology • HS 4C

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 Stan Hitomi and Kirk Brown, BIO-RAD, Hercules, CA

### 6:00pm - 10:00pm

### **Annual Banquet**

### Sendero Ballroom (Hyatt)

This final event of the 2006 Conference promises to be unforgettable. CONNECT with friends and colleagues over cocktails and dinner. Then listen to a presentation from NABT's 2006 Distinguished Service Award recipient, Shirley Malcom, head of the Directorate for Education and Human Resources Programs of the AAAS. Growing up in the racist South, she learned all about adversity. Her mother's church was bombed three times. At the predominantly white University of Washington, she was one of few black students. Never having had access to lab equipment, she failed her first two chemistry quizzes. Fortunately, a sympathetic TA (also African American) tutored her and she passed her course. That experience helped shape a career (originally as a teacher) that has benefited thousands of people.

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# Distinguished Service Award Recipients

- 2006 Shirley Malcom, AAAS, Washington DC
- James A. Thompson, V.M.D., University of Wisconsin–Madison, Madison,
  WI; and Nina Leopold Bradley, Aldo Leopold Foundation, Baraboo, WI
- 2004 Barbara Bancroft, RN, MSN, PNP, CPP Associates, Inc., Chicago, IL
- 2003 Roberta Pagon, M.D., Children's Hospital & Regional Medical Center, Seattle, WA
- 2002 Thomas E. Lovejoy, The H. John Heinz III Center for Science, Economics and the Environment, Washington, DC
- 2001 E.O. Wilson, Harvard University, Cambridge, MA
- 2000 Roger and Deborah Fouts, Chimpanzee and Human Communication Institute, Ellensburg, WA
- 1999 Jack Horner, Museum of the Rockies, Bozeman, MT
- 1998 Dr. Leroy Hood, University of Washington, Seattle, WA
- 1997 Neal Lane, Director, National Science Foundation, Washington, DC; and Donald Kennedy, Stanford University, Palo Alto, CA
- 1996 Dr. Francis Collins, National Institutes of Health, Bethesda, MD
- 1995 Carl Djerassi, Stanford University, Palo Alto, CA
- 1994 Bruce Alberts, National Academy of Sciences, Washington, DC
- 1993 Nancy S. Wexler, College of Physicians and Surgeons of Columbia University, New York State Psychiatric Institute, New York, NY
- 1992 Paul R. Ehrlich, Stanford University, Palo Alto, CA
- 1991 Stephen Jay Gould, Harvard University, Cambridge, MA
- 1990 Peter Raven, Missouri Botanical Garden, St. Louis, MO
- 1989 Stanley Cohen, Stanford University, Palo Alto, CA
- 1988 Lynn Margulis, University of Massachusetts, Boston, MA; and James D. Watson, Cold Spring Laboratory, Cold Spring Harbor, NY

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1973–William V. Mayer

1972–Chester A. Lawson, Paul E. Klinge & Robert L. Gantert

1969–Arnold B. Grobman

- 1965–John Breukelman, H. Bentley Glass, George W. Beadle, Paul B. Sears & Brother H. Charles Severin
- 1964–E. Laurence Palmer, Hermann J. Muller, Roger Tory Peterson, Oscar Riddle & Helen Irene Battle

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Booth #210

### ADInstruments

Colorado Springs, CO

ADInstruments specializes in PowerLab Data acquisition systems, Chart and Lab Tutor teaching software, transducers, and signal conditioners for life sciences.

Booth #502

### Amazonia Expeditions

Peru

Amazonia Expeditions offers educational travel programs to the western Amazon lowland rainforest.

Booth #208



### American Association for the Advancement of Science

Washington, DC

AAAS, the world's largest general scientific society, presents *The Evolution Dialogues*, a resource that explores evolutionary science, Christianity, and why the two need not conflict.

Booth #311

### American Association for Lab Animal Science

Memphis, TN

AALAS provides accurate information about responsible laboratory animal care and use and the benefits of biomedical research to both people and animals. A great classroom resource: www.kids4research.org.

Booth #306



### **American Institute of Biological Sciences (AIBS)** Washington, DC

The American Institute of Biological Sciences is a nonprofit scientific association dedicated to advancing biological research and education for the welfare of society. AIBS advances its mission through coalition activities in research, education, and public policy; publishing the peer-reviewed journal *BioScience* and the education Web site <u>ActionBioscience.org</u>, and other activities: <u>www.aibs.org</u>.

Booth #310



The American Physiological Society offers teachers print/multi-media/ online resources for K-12 science education, including summer research programs, inquiry-based classroom laboratory activities, and workshops.

Booth #303/305

### American Society for Cell Biology Bethesda, MD

The American Society for Cell Biology is dedicated to the promotion of research and education in cell biology. The Society's booth provides copies of *CBE–Life Sciences Education, Exploring the Cell,* and career advice materials of interest to teachers and students.

Booth #307

### American Society for Clinical Pathology

Chicago, IL

Get free brochures to introduce students to careers in pathology and laboratory medicine such as medical technology, molecular pathology, forensic pathology, histotechnology, cytotechnology, and more.

Booth #304

Ame Micr Wash

American Society for Microbiology Washington, DC

The ASM Education Board offers programs and resources in the microbiological sciences for students, early career scientists, and faculty. Available at the booth is information on careers in microbiology, research fellowships, curriculum materials, conferences and summer institutes. ASM Press, the book publishing division of ASM, will be exhibiting a selection of textbooks and general interest titles at the meeting. ASM Press offers a 10% discount on all orders placed at the meeting.

Booth #302

### American Society of Plant Biologists

Rockville, MD

ASPB offers free materials, handouts, bookmarks, and baseball-type cards demonstrating the principles of plant biology and its relevance to everyday life for K-12 students.

Booth #324



Visit the Animalearn booth, where you will have the opportunity to examine some of the latest realistic animal models and innovative CD-ROMs featured in the Science Bank — our free alternative to dissection lending library!

Booth #407



### **Benjamin Cummings** San Francisco, CA

As the foremost science publisher in higher education, Benjamin Cummings is dedicated to providing educators and students with the highest quality science textbooks and related resources. Our life science textbooks include such standard-bearing titles as *Biology, Seventh Edition*, by Neil Campbell and Jane Reece; *Biology: Concepts & Connections* by Campbell, Reece, Taylor, and Simon;

### **Exhibitors**

and Human Anatomy by Martini, Timmons, and Tallitsch; as well as innovative new texts such as Essential Environment by Scott Brennan and Jay Withgott.

Booth #411

# **Bio Corporation**

Alexandria, MN

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Booth #501



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### **BIOPAC Systems**, Inc.

Santa Barbara, CA

Stop by for a demo of Biopac Student Lab or the NEW Biopac Science Labdata-acquisition systems that engage student minds and develop critical thinking skills.

Booth #125

### **Biotechnology Institute**

Arlington, VA

The Biotechnology Institute welcomes teachers, students, and science educators to NABT 2006. Stop by our booth to learn about how to become a Biotechnology Teacher-Leader and participate in our professional development programs.

Booth #214



**BIOZONE** International Hamilton, NZ

See BIOZONE's critically acclaimed student workbooks for biology (grades 9-12) as well as our new Presentation Media (PowerPoint titles on CD-ROM). Attend one of our two workshops to receive FREE samples.

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### **Blue Spruce Scientific** Boulder, CO

Blue Spruce Scientific is an established supplier of biological products including preserved and living specimens, biology kits, microscopes, slides, lab equipment, anatomy models, and biotechnology.

Booth #504



Brooks/Cole, Thomson Belmont. CA

Thomson Brooks/Cole and Outernet have joined to offer a wide array of life/ environmental science texts and lab manuals for colleges and high schools.

Booth #508/510



BSCS develops innovative, inquirybased science curricula for grades K-college, provides professional development for educators and conducts research and evaluation studies.

Booth #108/110

### Carolina Biological Supply Company Burlington, NC

Carolina Biological Supply Company serves the K-16 market with everything needed to equip a science laboratory or classroom. A complete catalog is free to educators.

Booth #207/209

### **Center for Biophotonics**

University of California, Davis

Biophotonics uses light technologies to investigate living systems. Bring this exciting cutting-edge science into your biology, health, or integrated science class!

Table 1

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Booth #514

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Maynard, MA

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Booth #405



Ecology Project International Missoula, MT

Ecology Project International improves conservation and inspires science education through partnering students with scientists on field courses in the Galápagos Islands, Costa Rica, Mexico, and the USA.

Booth #205



EDVOTEK, Inc. Bethesda, MD

EDVOTEK, the Biotechnology Education Company, offers the most comprehensive array of biotechnology experiments, reagents, biologics, and injection-molded electrophoresis equipment. Call 1-800-EDVOTEK for a free catalog.

Booth #400

### Environmental Health Perspectives/NIEHS

Research Triangle Park, NC

Environmental Health Perspectives Student Edition is a free online resource that pairs news articles from the number one environmental health journal in the world with exciting, engaging high school science lessons that cover the full spectrum of disciplines and science education standards. Visit us online at www.ehp online.org/science-ed/.

Booth #300

Examgen, Inc.

Syracuse, NY

Examgen is the leading publisher of test item banks with test generator for secondary schools. We support science, math, and social studies

Booth #507

# Flinn Scientific Batavia, IL

Flinn Scientific Inc. is the leader in science and laboratory chemical safety. Flinn publishes the world renowned Flinn Catalog/Reference Manual. Flinn Scientific develops and offers a full line of chemistry, biology, physics, life science, earth science, physical science, and safety products for high schools and middle schools.

Booth #315

### FOTODYNE, Incorporated Hartland, WI

Visit our booth and enter to win a free teaching kit! FOTODYNE offers durable biotechnology equipment and innovative teaching kits to bring molecular biology to the classroom. Electrophoresis equipment, digital imaging systems, supplies, and kits will be on display. You can also learn about our educational outreach partnerships and hands-on workshops: www.fotodyne.com.

Booth #410

### Genisphere Inc. Hatfield, PA

Genisphere offers a hands-on wet lab simulation for DNA Chip assays that highlights the role of gene expression microarrays in disease detection and diagnosis.

Booth #124



Glencoe/McGraw-Hill Columbus, OH

Glencoe/McGraw-Hill is an established leader in curriculum development of life science/biology curriculums, which are supported with innovative technology that you can integrate for effective learning. Curricula available include those developed by the National Science Foundation.

Booth #500



### Holbrook Global Field Expeditions Gainesville, FL

Holbrook Global Field Expeditions is committed to providing educators, students, and life-long learners field opportunities for hands-on, real life experiences through safe travel designed and commenced within the guidelines of sustainable eco-tourism in exotic destinations around the world. We invite educators to explore our programming through www.holbrooktravel.com or call us at 888-890-0632.

Booth #202

### Kendall/Hunt Publishing Company Dubuque, IA

Kendall/Hunt Publishing offers a variety of K-college biology curricula, including programs by BSCS and Education Development Center, Inc.

Booth #100/102/104

### La Suerte

Miami, FL

La Suerte and Ometepe Field Stations are dedicated to research, education, and conservation. Open to groups and individuals willing to learn in the natural rainforests!

Booth #118

### **LEGO Education**

Pittsburgh

LEGO Education provides standardsbased, hands-on science, math, and technology curricula including robotics, simple machines, structures, energy, and physical science that engage and motivate students.

Booth #503

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Booth #201/203

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Baton Rouge, LA

LSU's Scope-On-A-Rope program is developing new applications for this technology. Your classes can see excellent live images, including microscopic samples, on a television or computer.

Booth #122

### Motic Digital Microscopy Hong Kong

We provide all-inclusive digital microscopy products at very competitive prices to enhance both teaching and learning of science.

Booth #516

### Nasco

Modesto, CA

This catalog lists equipment and supplies for general science, biology, chemistry, physical science, earth science, and technology education.

Includes many items developed by Nasco and sold only through our catalog. Specialty items include living and Nasco-guard preserved specimens. Special emphasis is placed on handson science investigations and safety in the classroom. Visit us on the Web at www.enasco.com.

Booth #404

### National Center for Science Education

Oakland, CA

NCSE is the only organization in the country dedicated to supporting the teaching of science in the public schools.

Booth #309



### National Evolutionary Synthesis Center Durham, NC

The National Evolutionary Synthesis Center (NESCent) is an interdisciplinary research institute that provides resources for teachers on the latest discoveries in evolutionary biology.

Booth #308

### National Human Genome Research Institute

Bethesda, MD

The National Human Genome Research Institute supports genetic and genomic research, investigation into the ethical, legal, and social implications surrounding genetics research and educational outreach activities. Francis S. Collins, M.D., Ph.D., is the director.

Booth #119

### Nati Hea Beth

National Institutes of Health Bethesda, MD

The Office of Science Education (OSE), along with 27 institutes that comprise the National Institutes of Health (NIH), develops and distributes free science education materials for K-12.

Booth #301

### National Library of Medicine Bethesda, MD

A world of knowledge for the nation's health (<u>www.nlm.nih.gov</u>), NLM provides free access to Internet health information including PubMed (MEDLINE), Medline Plus (patient education), and <u>ClinicalTrials.gov</u>.

Booth #216



### NeoSCI provides innovative products for teaching curriculum-based science topics to K-college students. We feature unique virtual software integrated with hands-on labs.

Booth #204

### **Nutrients for Life Foundation** Washington, DC

The Nutrients for Life Foundation, a non-profit organization, aims to educate individuals about the impact plant nutrients have on our environment, our crops, our foods, and our health. Through a grant to BSCS, the foundation underwrote development of supplemental science curriculum materials for middle and high school students and teachers to improve understanding of soil science and plant nutrition.

Booth #505



**PASCO** Roseville, CA

PASCO offers award-winning probeware solutions and standards-based teaching materials for biology and environmental science that allow students to collect and analyze data in the classroom and in the field.

Booth #211



**Pearson Prentice Hall** Upper Saddle River, NJ

Pearson Prentice Hall offers a complete array of exciting educational products at the middle and high school levels. Research-based core curriculum textbooks, ancillaries, electronic media, and professional development programs provide you with the latest and most engaging teaching and learning materials available.

Booth #415/417



**Prentice Hall Publishing** Upper Saddle River, NJ

Prentice Hall welcomes you to NABT 2006. As a full service biology publisher, we have a wide variety of textbook offerings to meet the needs of your curriculum. Please stop by our booth to browse our titles and integrated media offerings. To view our online catalog, visit www.prenhall.com/biology.

Booth #515

### **Red Hill Studios**

Larkspur, CA,

Red Hill Studios presents *BioInvestigators!*, a forensic biology game that challenges students to solve real world cases using DNA analysis. Try the demo!

Booth #509

### Sargent Welch

Tonawanda, NY

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### Science Kit & Boreal Laboratories Tonawanda, NY

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Booth #115/117

### SimBiotic Software

Ithaca, NY

We'll demonstrate *EcoBeaker*, *EvoBeaker*, and other innovative

computer programs for teaching college and secondary ecology, evolution, environmental science, neurobiology, and cell biology using interactive simulations.

Booth #414/416

### Speak Easies

Santa Rosa, CA

Speak Easies produces standards-based magnetic teaching aids for the biology lesson. These colorful aids can guide the teacher's lecture or be actively used by students.

Booth #402

### **Teaching Magazine/Agent K-12** Bethesda, MD

Booth #121



**Texas Instruments** Dallas, TX

Texas Instruments educational technology, training, and curricular materials are designed to help increase student achievement in biology. Visit TI's booth or <u>education.ti.com</u>.

Booth #105/107

### The College Board

New York, NY

The College Board's mission is to connect students to college success and opportunity. We are a not-for-profit membership organization committed to excellence and equity in education.

Booth #314

### **3D Molecular Designs & MSOE Center for Biomolecular Modeling** Milwaukee, WI

3D Molecular Designs and Center for BioMolecular Modeling provide molecular models and professional development for educators including magnetic Water & DNA Kits and SMART Teams.

Booth #225

### TOUCH OF LIFE TECHNOLOGIES

Aurora, CO

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Booth #206

### U.S. Department of Energy Genome Programs Oak Ridge, TN

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Booth #317



US Micro-Optical Solutions presents a complete line of educational microscopes. The new student Forensic and Polarized microscope will be displayed. All offer high image quality, illumination, durability, comfort, and affordability. US Micro offers microscopes designed with features optimizing science education that last for years. Our exhibit staff will discuss any service or preventative maintenance questions you may have.

Booth #511

### Vernier Software & Technology Beaverton, OR

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Booth #101/103

### Virginia Commonwealth University Richmond, VA

Fifty free online biology videos with lesson plans available at <u>www.vcu.edu/</u> <u>lifesci/sosq</u>. Also week-long summer workshops in forensics and other life sciences in historic Richmond, <u>www.</u> vcu.edu/workshop.

Booth #215

### Virtual Courseware Project

Los Angeles, CA

Mate fruit flies, measure geologic time, or experiment with evolution online! Learn about free inquiry-based simulation activities for enhancing your curriculum at <u>www.ScienceCourseware.</u> org.

Booth #316



### Ward's Natural Science Rochester, NY

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Wiley Hoboken, NJ

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By Cathy Trost, Science 82, November 1982, pp.35-39.

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