

Strategies

F O R S U C C E S S

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About The Newsletter

Strategies for Success is published as a service to undergraduate science instructors. It is intended to stimulate ideas, disseminate solutions to common obstacles, and update readers on recent developments and findings. We welcome comments, contributed articles, and suggestions for future issues. Please contact the Editor at strategies@aw.com or via fax at (978) 465-6658. Past issues of the newsletter are available on our Web site at www.aw-bc.com/events/strategies.

USING THE NEWS TO TEACH

Science-related topics appear in the news, on TV, and in the events around us every day. Finding these stories is easy; linking them to the topics and learning activities of your course in a timely manner may not be. In this issue, our contributors share ideas for using current events in ways that not only add interest to the subject, but also seek to improve students' ability to retain and integrate course content. You'll also find helpful tips for the technology tools needed to add news video clips to your lectures!

From your responses to last issue's Sound Off question (see page 7), it's clear that many of you are successfully using today's events in a variety of ways in your courses. In fact, there were more responses than we were able to print, but you can see them all by visiting www.aw-bc.com/events/strategies. Please be a part of our next issue with your answer to our new Sound Off question on page 8!

As you know, this newsletter is made possible by our contributors, to whom we are deeply grateful. May their experiences be a boon to your efforts to link the science classroom to the world around us.

KILLER LAKES

*Diana Glick, Georgetown University
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Wouldn't you like to start your non-science major's chemistry class with an article that students are guaranteed to read because the story is gripping, heart-rending, and enlightening? An article that shows how people can try their hardest to help each other, and succeed? One that shows how knowledge about our world progresses—and best of all—teaches some basic chemistry, leaving students genuinely curious to learn more? How about a reading assignment that empowers all students, regardless of cultural and educational background, to contribute to class discussion?

Science educators know very well that articles like this are available because interesting events involving chemistry, biology, and physics are always unfolding around us. One such article, "Defusing Africa's Killer Lakes," (Krajick, Kevin. "Defusing Africa's Killer Lakes." *Smithsonian*. Sept. 2003: 47–55.) tells the story of a mysterious mass asphyxiation of 1,800 people living near the shores of a crater lake in a remote region of Cameroon.

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Killer Lakes

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This tragic event in 1986 caused the death of nearly every resident as well as all livestock within 25 kilometers of the lake. The mystery has since been solved, but efforts to prevent a recurrence are ongoing. Krajick's article is engaging on many levels, and as a reading assignment it serves magnificently to introduce and set the tone for a non-science major's chemistry course.

This geology/human interest story is full of chemistry. Carbon dioxide, a natural by-product of geologic processes, seeps into the bottom of Lake Nyos and builds to dangerous levels because of the equatorial climate. It is never cool enough to cause the surface water to cool and sink in the way most bodies of water naturally mix layers over time. As a result, this deep lake becomes supersaturated with carbon dioxide until a sudden disturbance at the surface releases dangerous quantities of the gas. In 1986 a rock slide caused Lake Nyos to degas suddenly and tragically. It is estimated that a billion cubic yards of carbon dioxide roiled out of the lake and enveloped the community.

Krajick's article tells the whole story: The events of that horrible day from a survivor's point of view, the efforts to solve the mystery and convince others to help fund the solution, and the construction of the system that is currently degassing the lake. Over the course of two 75-minute classes, one writing assignment, and one in-class group project, students learn and discuss many things. During the first class on this paper, students work in groups on a worksheet that gets them thinking and talking about the issues we will discuss as a class. Students are then required to write a 2-3 page essay that includes a summary of the article and identification of at least three themes in the article that make it useful to discuss in an introductory chemistry class for non-science majors.

For a chemistry lecture, introductory concepts such as chemical/physical properties, substance/mixture, element/compound, and units can be taught by example. Properties such as density, solubility, odor, color, and phase, and terms such as saturated solution and supersaturated solution can be defined and described in the context of the article. Chemical change can also be defined (i.e., rocks beneath the lake produce CO_2 , and the fearsome red color of the lake observed by survivors was the result of the oxidation of newly surfaced iron minerals once held deep in the lake).

Students often have questions about the difference between CO_2 asphyxiation and CO poisoning. This is

an excellent opportunity to emphasize why chemists are sticklers for correct chemical formulas! Clearly that one oxygen atom makes a big difference! We compare O_2 displacement associated with suffocation versus the poisoning that occurs because CO chemically binds to hemoglobin more strongly than O_2 . At this point students get a firm feel for the significance of fundamental chemical knowledge in everyday life.

An important series of questions that encourages discussion are: How does science work? What is peer review? How do scientists communicate their results? What does it mean if something is "scientifically proven"? Students are engaged with this topic because they have read that the whole disaster could have been avoided if the research associated with a similar event at another crater lake in the region (Lake Monoun) had been published. The paper on CO_2 build up in crater lakes was considered too "far-fetched" and it was rejected. Only after almost 2,000 people died did many more researchers participate in the investigation, and the original hypothesis was confirmed. Students are unanimously offended by this because they see scientists operating as some monolithic block, a uniform "they" that should have solved the problem in time. This provides an opportunity to help students see that scientists are not part of some monolithic community, but an active group of individuals working independently and often competitively in a diverse world-wide community of academic, industrial, and government sponsored institutions.

The fact that the mystery was solved and a solution to a natural problem was found helps students see the value of the scientific approach to problem solving. They also see that non-scientists are part of the solution. A world population that is scientifically literate is necessary for solving such problems. It becomes obvious that knowledge of science is not just for people who do the science, but for all people involved in making decisions that effect the well-being of others.

Another theme that can be explored using this article as a launch pad is: How do technologically advanced communities help those that do not share the same knowledge base or values? The article communicates how respectful the foreign researchers were to the beliefs of the people living around the lake. The inhabitants were also open to and grateful for the scientists' help. It is refreshing to see an example of mutual respect and communication in natural disaster problem solving, and the example poses a great opportunity for students to discuss these issues.

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Killer Lakes

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In the long run, it is important for students to recognize that scientific results are not intuitive. The way we understand our world is prescribed by a large database of facts that have been scientifically proven and must be taught to each subsequent generation. Our ability to solve problems in the future hinges on our ability to apply the scientific method. One of my favorite quotes summarizes this idea concisely: “The most remarkable discovery made by scientists is science itself.” (Gerard Piel, former publisher and chairman of *Scientific American*).

A final benefit of starting the course in an unconventional way is meeting the learning needs of different students. Students who feel forced into taking a science course can be resentful, and therefore close-minded before they even enter the classroom. Other students are simply fearful of failing a college course because they are not “science types.” Still others have had advanced placement chemistry classes in high school and are looking for an easy ride through a college course. If close-minded students are greeted with an example wherein all ways of thinking are valued, they tend to relax a little. Fearful students have an opportunity to succeed through writing an essay, collaborating with a group to answer questions from the article, and participating in class discussion on diverse topics. It is not the long list of facts and scary quiz that they expected, so they too relax a little. And we all know that AP students can still learn a lot by seeing the facts they know in a new context. Writing about and discussing the chemistry in a new way maintains the constructive involvement of these students as well. What a great way to get the semester rolling! ■

FINDING RELEVANCE IN THE NEWS

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What is the meaning of the word relevant and what makes something relevant? According to the *American Heritage College Dictionary*, relevant refers to something “connected with the matter at hand; to the purpose; pertinent.” Many educators believe that if we use something (a concept, term, etc.) or connect it to our work or daily lives, we will remember that concept or term for a longer period of time than when it is simply memorized for an examination. Anatomy and physiology is certainly

alive as a discipline for us, the teachers, but for students the memorization of facts, terms, and processes may obscure the connections that would help them retain the material.

In my one-semester Anatomy and Physiology course, students vary widely in the degree to which they find the course content relevant. Allied health majors generally anticipate that their prerequisite Anatomy and Physiology courses will be relevant when they are actually in the “nursing, radiology or physical therapy programs” and not before. Students currently in criminal justice, paralegal, pharmacy technician, human services, medical assisting, and paramedic programs may or may not make the connection to their field of study. Students in the course who are majoring in business, art, history, and psychology are taking the course simply to satisfy their general education laboratory science requirement. With this eclectic population of diverse backgrounds, goals, ages, and experiences, I have found that a few students are able to connect the content or theory to their own personal experiences or to other courses on campus. The rest of the students are less able to think out of the classroom and see where the material applies to their own lives.

In order to make the course content more relevant for all of my students, I added “Relevance Writings” to the core of writing assignments required for the course. The assignments are designed to get students into the habit of “using” what they are learning in class by asking them to relate topics in anatomy and physiology to the current events that bombard us daily in the media. The writings have let them find relevance for their course work not just in the “real world,” but particularly in the real world of their field of study.

In their Relevance Writing, students must locate a current event story that relates to a course topic, cite the medium in which it was found (with dates and times if appropriate), write a description of the course topic as discussed in class (to reinforce the content), and discuss the relevance of the topic to the current event story. They can do this in about one paragraph. Twenty Relevance Writings are required. Each is worth one point and students can earn 20 points of the total of 100 points for writing assignments (which is part of 600 points for the entire course grade). I collect the papers at about the 12th week of a 15-week semester.

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Finding Relevance in the News

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Topics from anatomy and physiology appear in the headlines of our local newspapers, in magazines, on the television evening news, in radio news reports, and even on the opening screens of our Internet browsers. Current events in science, medicine, law, and politics are permeated with topics from our courses. Students just have to look for them, or more correctly, realize that they have heard about the topic in their coursework and be willing to think a little more about how the content applies to a real life situation.

A few examples from my own students' writings dealt with topics such as DNA, stem cells, erythropoietin, brain death, and coronary arteries. DNA was recently discussed in a newspaper article about court cases in the state of Virginia, and in another about the identification of deceased soldiers. Because the article discussed not only the scientific but also the legal implications, students from criminal justice, paralegal, history, paramedic, and human services programs could see the relevance to their career areas. When business students saw advertisements for Procrit® and realized the relationship to the human hormone erythropoietin and genetic engineering, they were able to see the role of physiology in making a profit. Stem cells and brain death in the media bring politics, science, and medicine together for the students in their writings. Beating heart surgery for coronary bypass patients in the media showed students the relevance of the heart anatomy they had memorized—and then could apply to understanding a medical breakthrough that allows surgeons to perform coronary artery bypass grafts while the heart is still beating and without putting the patient on a heart/lung machine. The list of examples can go on and on.

The benefits of the Relevance Writing are numerous. Students improve their written communication skills and reinforce their learning as they link course topics to current events. But most importantly, they are better able to relate their classroom experiences to the current events of the real world and their field of study. Even after the semester's end, I have had students send me Relevance Writings by e-mail, still excited that they found a topic from class on the news or in the newspaper. In this way, I believe the assignment has succeeded in using "relevance" to improve student learning. ■

HOW TO ADD CURRENT EVENTS VIDEOS TO LECTURE

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One of the primary goals of many introductory biology courses is to prepare our students to be "citizen scientists." We, as biology educators, seek to create a public that is interested in the field of science, and has the background and critical thinking skills necessary to properly understand and evaluate scientific stories reported in the popular media. The source of news for most of our students is television. It thus benefits many instructors'

teaching goals to use current events videos (i.e., local and national news broadcasts, news "magazine" shows such as *60 Minutes* or *20/20*, or your own recorded home videos) to illustrate the links between biology and society and/or to stimulate discussion in the classroom. Students are often particularly interested in local news broadcasts, as this can seem more relevant to their lives. For example, I've found that showing a local affiliate's broadcast about umbilical cord blood banking in our state encourages more discussion than a general description of the topic.

In the dark ages of the 20th century, many instructors could easily videotape a television program and then show it on an in-class VCR. This option is still available to many. For instructors who lecture primarily with digital multimedia presentation software such as PowerPoint, it is convenient to digitize and incorporate video within these presentations. I will briefly describe the tools required to accomplish this on a shoestring budget.

There are three basic ways by which current events videos can be incorporated into digital presentations:

1. Live TV broadcasts can be captured and stored as a digital file on the computer.
2. A TV recording (i.e., videotape, DVD, or home video) can be captured and stored.
3. A pre-digitized copy of the broadcast can be viewed on the broadcaster's Web site.

For option 1 (digitizing live TV broadcasts), you'll need to install a video capture card. This is a device that plugs into your computer's motherboard (usually via a PCI slot) and has an external connector that accepts a cable TV coaxial input. One example is the *TV Wonder VE (NTSC) TV-tuner/Video Capture PCI Card* by ATI Technologies, which sells for around \$50. To find other

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How to Add Current Events Videos to Lecture

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models, search for “video capture” at your favorite retail Web site. Alternatively, if you don’t want to open up your computer or if you have a laptop, you can obtain a video capture device as an external USB unit, like *TV Wonder USB 2.0 NTSC External TV Tuner*, which sells for around \$100. You can then view TV broadcasts and save them as digital movie files “on the fly.”

I find option 2 to be the best. To digitize recorded broadcasts, you’ll need to install a device that can accept video input from a camcorder, VCR, or DVD player. One popular model (and the most basic) is the *Dazzle Digital Video Creator* by Pinnacle Systems, which sells for about \$80. This and similar devices typically plug into a USB port and provide input plugs that accept analog video and audio cables (the yellow and red/white “RCA-type” cables frequently used in home entertainment systems) and digital S-Video cables. Nearly all video capture devices (options 1 or 2) come with easy to use (but low-capability) video editing software that should suffice for most educational purposes. The capture software can store the video in a variety of digital formats. The format “mpg” is probably the most useful for educators for importing directly into PowerPoint.

For option 3 (displaying pre-digitized video), there are a number of commercial Web sites that offer free access to video clips. For example, cbsnews.com and foxnews.com feature free video clips on current stories that can play through your Web browser. The primary advantage of this option is that the instructor does not have to do any work to bring the video into the computer. There are disadvantages, however. You have to halt PowerPoint (or start the Web browser from within PowerPoint) to view the videos instead of having the more seamless video-within-PowerPoint of options 1 and 2. The video is often relatively small on the screen, whereas the previous options allow you to resize the video as needed. Most significantly, most of the “free” sites require that a 15-second commercial (for the news program, an advertiser, or both) be viewed before watching the news stories. Many instructors are loathe to introduce such commercialism into the classroom.

A quick way to develop a library of current events biology videos is to create an assignment to be completed by individual students or groups of students. Each student or group is required to record and present one brief news story relevant to the course material. With 24-hour every-30-minutes news broadcasts, and local news repeated in the evening, night, and late night,

it is easy for students to identify and record such programs. Students are required to become “content experts” on their chosen broadcast and to critically evaluate the story presented. (Did the story show opposing viewpoints? Whom did they call on to represent each side? Did the students find one side more convincing?) If the broadcast describes a recent study or finding—for example, something along the lines of “Scientists find a link between fast food and cancer”—the students can be required to restate the broadcast in terms of the scientific method. (What was the researchers’ hypothesis? What method did they use to test it?) I have even used such critical thinking questions about news broadcasts as final exam questions.

Introducing video clips of recent news stories is a good way to stimulate discussion and enliven your lecture presentations while steering clear of any copyright issues; timely presentation of news stories in the classroom is a clear example of the “fair use” copyright exemption. Creating your own collection of relevant videos is cheap and easy enough to be within the reach of nearly every instructor. For less than \$100 and an hour of your time, you can help students appreciate and evaluate biology in the news—a critically important skill for our future “citizen scientists.” ■

Editor’s Note: Eric Simon is co-author of *Essential Biology, Second Edition* (Benjamin Cummings, 2004) and *Biology: Concepts and Connections, Fifth Edition* (Benjamin Cummings, 2006).

KEEPING THE BIOLOGY CLASSROOM CURRENT AND ALIVE

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Those of us who teach in the sciences have found that one of the greatest weaknesses in student performance is the inability of students to think and express themselves in written form. With the onset of the 1990’s, it was noticed that students’ test scores declined on short answer and essay tests. Where a combination of multiple choice and short answer/essay questions were used, a large majority of students were either unable to answer the short answer/essay items successfully, or made no attempt to answer at all.

In my attempt to address this problem, I increased the number of test items that were short answer/essay questions and started instructing students on how to respond to them. This forced students to develop their critical thinking skills, and I saw writing and critical

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Keeping the Biology Classroom Current and Alive

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thinking improve at first. As this activity decreased in effectiveness over time, I tried another writing assignment using current events. For optional credit, students developed a journal of current biological articles, each containing a minimum of ten articles (worth 10 points each) from a newspaper or scientific journal. In order to receive full credit, students had to write a critique of the article (with correct spelling, grammar, etc.). Students who chose to do the journal presented the most interesting articles in a one-day seminar to the class. Unfortunately, this second activity didn't address the students' needs as I perceived it would. Many students did not take advantage of the optional assignment. For those who did, the focus was largely on optional credit, instead of improving their writing skills and ability to think.

Undeterred, I decided to restructure my Biology and Anatomy and Physiology courses to include optional assignments related to scientific breakthroughs. These assignments give all students the opportunity to be successful and, at the same time, focus on their thinking and writing weaknesses. This new strategy has proven to be more stimulating for students. The exposure to current events is applicable to everyday life, informative, and brings the course content to life. The assignments help students to:

1. Develop their writing skills
2. Exercise logical thinking
3. Develop research skills
4. Be able to recognize credible research through the review of multiple sources
5. Become informed of the latest breakthroughs in the biological community

The Breakthrough Assignments

In my Biology classes, I give two assignments worth 25 points each. At the beginning of each semester, I discuss the optional assignments with each class and assign the areas of research from the course outline. For example, I recently selected The Cell and Human Genetics as the two areas of research. Students are then free to choose a specific topic related to one of those areas. Examples of the topics selected by students are:

- Stem Cells Promise Better Plastic Surgery
- Stem Cell Therapy for Cancer, Liver Disease, Arthritis, Irritable Bowel Disease, Aging, and Diabetes
- Stem Cell Research May be Boon to Fertility Clinics

In my Anatomy and Physiology classes, students are given two assignments worth 15 points each. Students are able to write about breakthroughs in medical procedures that relate to a particular system or to treatment of a specific disease, or medical breakthroughs that relate to two areas selected from the course outline. I select the research areas for the first assignment and students may select the second one.

In all classes, students begin by finding a credible study or article written in the last two years that illustrates a scientific breakthrough. They make a copy of the research article, summarize it, and critique the findings. Each summary/critique must be two typewritten pages, double-spaced, grammatically correct, and without spelling errors. The research article must be attached to the paper. Due dates are usually the first day that we begin the discussion of the topic in class. I then devote one day of class to a seminar in which each student who chooses to do the assignment is allowed 3-5 minutes to discuss his or her findings with the class. (The discussions with the allied health students are particularly interesting because of the relevance to their career choice.) The total points earned for the assignment are then added to the student's grade at the end of the semester. Typically, the first assignment is due the fifth week of the semester, the second due the tenth. By the tenth week, I generally find that all students are participating in this optional activity.



Reflection on Results

I have found that using current events in the form of scientific breakthroughs for coursework develops greater student interest in the coursework, and many students are self-motivated to research their topics even further. Some students have even found research to help family members who have certain illnesses.

As to what degree the assignments have improved the students' thinking and writing skills, I am not certain, but it does give me a means of assisting students with their areas of weakness. More importantly, perhaps, is the effect of the research assignments on student perception of the coursework. Students tell me that the research on breakthroughs brings the course to life. In fact, my students have requested *more* than two assignments per semester and suggested that a course be developed around medical breakthroughs for allied health students! And if such a course should come to fruition, guess who would volunteer to teach the course? ■

OUR READERS SOUND OFF ... INCORPORATING CURRENT EVENTS

Here is a selection of readers' responses to, "How do you incorporate current events into your course?" To read more and longer responses, visit www.aw-bc.com/events/strategies.

I receive "Science in the News" each day via e-mail. This is a great way to receive short summaries of what is currently happening in our world in relation to science. If you are particularly interested in a story, there is always a link to the full-length article! At least once every other week I come across a story that is relevant in some way to what I am talking about in the classroom. I always introduce the news event in the middle of my lecture by starting off in a way similar to how they present the news on "Saturday Night Live." I challenge my students to beat me to the news story and give out extra credit if they do.

Also, each week of the semester, a different student group prepares a "real world" presentation on the topic of the week. This presentation must explain how the topic is relevant to our everyday lives and include a news event that has happened within the past several months (also related to the topic). We often end up discussing the news events that are presented because many are controversial in one way or another.

—*Kelly Bohrer, University of Dayton*

I teach a non-majors biology course, Public Health, and I constantly incorporate current events. At the beginning of the semester, I ask students to bring me two examples from any source—TV shows, radio, newspapers. During the semester I start at least one class a week with my update. As the semester progresses, the students start volunteering what they have heard.

I also use articles in the newspaper as a starting point for exam questions. In addition, we have a series of debates. I take an issue in the news and ask two groups to research it and present a debate on the topic. The rest of the students come to class with a written opinion piece on the topic. This year we examined the McDonald's lawsuits and obesity, needle exchange programs, and testing pregnant women for HIV. We have lively discussions and the students really enjoy it.

—*Ann B. Maine, Lake Forest College*

We have students submit newspaper or magazine articles following Thanksgiving break. Then we convene several faculty panels (instead of having lectures). For the last week of class we discuss some of the articles. Students love it! It's a way we "review" topics from earlier in the semester and show how they're integrated.

—*Amy C. Vollmer, Swarthmore College*

I incorporated the Terri Schiavo controversy into my last exam as an extra credit question. There is no right or wrong answer; I only require that the students use correct anatomy and physiology in their reasoning.

—*Jean Witz, Prince George's Community College*

I cut out articles from magazines and newspapers and share them in class, usually followed by a lively class discussion on the topic. One such discussion centered around the new food pyramid being created by the FDA. We compared the current and proposed pyramids and discussed how our eating habits may have to change. This discussion included the class topics of calories, fats, carbohydrates, and so on.

I also encourage students to bring in their own articles and give a 5-minute presentation in class. Doing so nets them 5 extra points on the next exam.

—*Roy Cohen, Xavier University*

I find that students will become involved in relating to a current event if I assign a one-paragraph bonus paper on the subject. In class, I bring up the chemistry topic (as a review if necessary), comment briefly on the news article in a way that prompts a student to ask about that article, and then say "You don't know about that? For a two point bonus, write a one paragraph paper that..." I find it works well, with as many as 90% of students turning in the paragraph.

—*Michael R. Dorneman, Mercer County Community College*

In Biochemistry, the Atkins diet/low carb diet is incorporated into lessons about carbohydrate metabolism and protein metabolism.

—*Lesley Brown, Goucher College*

I use current events to engage students actively in learning and they appreciate the real-world perspective on chemistry. Some examples are:

Analyzing different food labels for saturated versus unsaturated fat, structure and mode of action of cholesterol, caloric values for different food groups, combustion reactions, exothermic versus endothermic reactions.

Looking at the active ingredients for over the counter hot and cold packs for enthalpy/heat change associated with various reactions.

Making a Smart Shopping Guide for medicine and cosmetic products that includes topics such as antioxidants and vitamins, pH balanced shampoo, buffer coated aspirin, antacids and neutralization reactions, and radical catchers in expensive skin lotion.

Finding newspaper articles on cutting edge medical topics such as lead toxicity, artificial blood (Fluosol-DA), and blood alcohol screening.

—*Supriya Sibi, Houston Community College*



STRATEGIES FOR SUCCESS WORKSHOPS

Looking for a low-cost professional training and faculty development program? Benjamin Cummings invites you and your colleagues to

attend an upcoming Strategies for Success workshop—free of charge! Session topics include techniques for improving student participation, collaborative learning, and integrating technology into lecture and lab.

November 12, 2005 Auburn University, Auburn, AL

For details and registration for more *Strategies for Success* workshops, please visit www.aw-bc.com/events/strategies or call 800-950-2665 x2433.

UPCOMING CONFERENCES

National Association of Biology Teachers (NABT)

October 5–8, 2005, Milwaukee, WI www.nabt.org

Metropolitan Association of College and University Biologists (MACUB)

October 29, 2005, Monmouth University, West Long Branch, NJ www.macub.org

Human Anatomy & Physiology Society (HAPS) Regional Meeting

October 22, 2005, Community College of Baltimore County Catonsville, MD www.hapsweb.org

American Society for Cell Biology (ASCB)

December 10–14, 2005, San Francisco, CA www.ascb.org

If you are attending this meeting and are interested in attending a focus group on active-learning teaching techniques for cell biology, please contact Mercedes Grandin at Benjamin Cummings, Mercedes.grandin@aw.com.

Society for Integrative and Comparative Biology (SICB)

January 4–8, 2006, Orlando, FL www.sicb.org



SPARKING DEBATE

While the preceding pages have offered strategies for using news stories and videos to teach in the sciences, our next issue will explore the “opinion” side of the news media. Have you used

debate techniques or controversial issues to engage students in learning about a science topic? Our next issue will include our readers’ responses to the following question:

Which science controversies work best for classroom discussion, and why?

Sound Off entries will be entered in a random drawing for a \$100 American Express gift certificate. To enter, please send an email to strategies@aw.com, or fax your response to (978) 465-6658 by January 15, 2006.

STUDENT SCHOLARSHIPS

Do you know of an outstanding student to nominate for a Benjamin Cummings scholarship award? For the online nomination forms and details, please visit www.aw-bc.com/scholarships.

- The Allied Health Student Scholarship gives 5 student grants of \$1000 each; student applications are due November 1, 2005.

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