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by Julie Boardman

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Jamie Larsen has always believed that microscopes could be used more creatively in the classroom, so when Alison Swift of the Microscope Division of Swift Instruments, Inc. offered to loan him a video-microscope to test his ideas, he jumped at the chance.

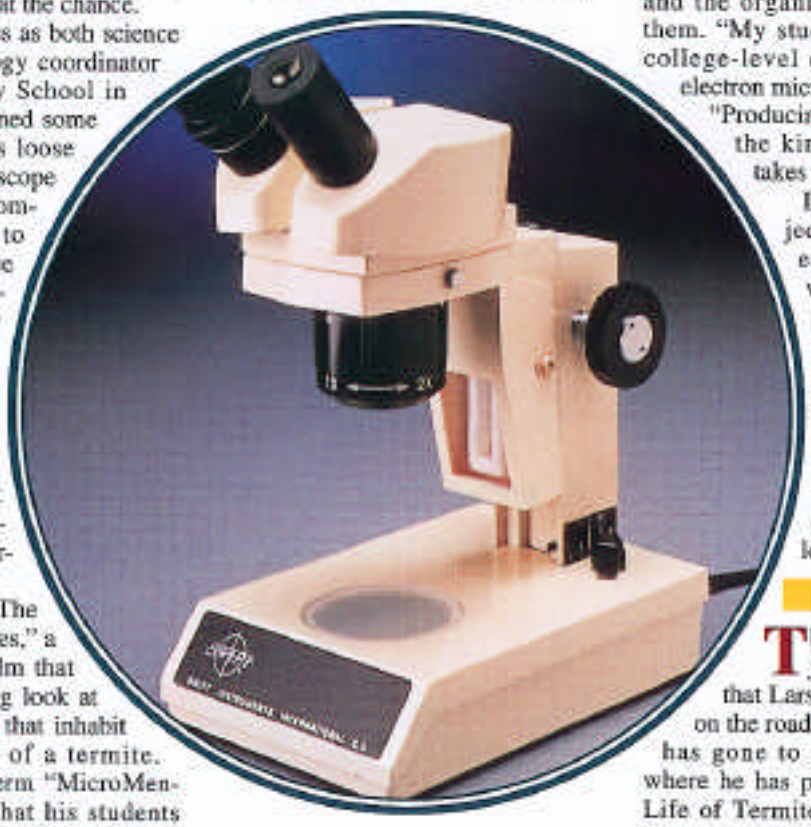
Larsen, who serves as both science teacher and technology coordinator at the Verde Valley School in Sedona, Arizona, turned some high school students loose with the video-microscope and a multimedia computer, telling them to come up with a three to five minute exhibition of their mastery of a science concept. His only requirements were that the project had to capture the viewer's attention and that it must pertain to a science topic that interested them.

The result was "The Secret Life of Termites," a short "Nova"-like film that provides a fascinating look at the micro-organisms that inhabit the digestive tract of a termite. Larsen coined the term "MicroMentary" to describe what his students created. He defines a MicroMentary as a "student conceived, designed and produced documentary on some aspect of the microscopic world."

MANY BENEFITS

Larsen was breaking new ground when he used the video-microscope for a student produced project. The video-microscope is, quite simply, a microscope with a color video camera mounted on it. Teachers who have access to the video-microscope tend to use it to illustrate lectures with videos that show detailed microscopic images.

But the lecture method isn't always the best way to teach science. In fact, the National Science Teachers Association and other groups have been calling for something different. They say students need "hands-on" activities that engage them in the learning process in meaningful and relevant ways. This is what happens when students use a video-microscope to produce a MicroMentary, as Jamie Larsen discovered.



His students learned a lot about termites and the structure of micro-organisms. They also gained experience with computers, an appreciation for the correct use of microscopes and an understanding of the cooperative effort involved in doing science.

In addition, producing the MicroMentary led to an unusual and exciting learning experience. Some of Larsen's students visited a local university to learn how to use the electron microscope so they could take electron micrographs of the termites and the organisms that live inside them. "My students had an intense college-level experience with the electron microscope," Larsen says. "Producing a MicroMentary is the kind of thing that just takes off."

Larsen claims the project more than met his expectations. "It was what you strive for as a teacher—to step back and be the facilitator," he says. Best of all, it produced "the elusive result teachers all long for—the motivated student who wants to learn more."

A CONTEST

The MicroMentary project was so successful that Larsen has taken his show on the road. Over the past year he has gone to several conventions where he has presented "The Secret Life of Termites" and told teachers how to create MicroMentaries.

And Swift Instruments, Inc. has taken matters a step further. They're sponsoring a MicroMentary contest (See SIDEBAR for details). The contest is designed so that schools that lack sophisticated equipment may still enter. Both "high tech" and "low tech" submissions are allowed. A "low tech" entry would be one that consisted solely of storyboards, while a "high tech" MicroMentary would use a microscope and either a computer, video camera or 35mm camera.

ORGANIZING A MICROMENTARY

Larsen's students produced their MicroMentary over a 12-day period, spending three hours each day on the project. They were fortunate in having a significant block of time in which to work. Verde Valley School is a private four-year high school, and the students have a two week Project Period when they are able to spend all their time on special projects of their choice. But a MicroMentary can easily be created during the standard school day. "Regardless of when you run your project, you should dedicate no less than two weeks to it and, if possible, three to four weeks," Larsen says. "The more time you can invest in the project, the greater and more impressive the results."

He offers several suggestions for organizing a MicroMentary project:

1 FORM COOPERATIVE GROUPS Larsen recommends establishing teams comprised of three or four students and then assigning specific roles and responsibilities to each team member. The team that created "The Secret Life of Termites" included a computer expert (who learned about all the software and hardware used in the project), a content expert (who was responsible for learning the science for an accurate project), and a project manager (who kept the team focused on its task). "By establishing these roles and encouraging students to share their expertise the teachers' role becomes one of facilitator," he says.

2 BEGIN WITH A BRAINSTORMING SESSION The group work should begin with a brainstorming session to generate ideas that can be turned into a MicroMentary. To get the session going, list five or ten ideas on the board and ask the groups to think of ways in which they could present these ideas or concepts in a multimedia production. Ideas to list might include: pond life, symbiosis, or life in the human mouth. Prizes could be given to the group that comes up with the most ideas or the most interesting ones.

"Encourage them to think of an idea that interests them and contains an element of fun, as this will more than likely interest their audience,"

Larsen advises. He also suggests showing clips from "Nova" or "Star Wars'" to get students thinking about how these films present information and generate viewer interest.

3 DEVELOP A SET OF STORYBOARDS Once students have chosen a topic and selected a working title, they should begin their research. The idea is to find facts and pictures that can be developed into a set of storyboards. The purpose of storyboarding is to get down on paper what it is the students want to build into their multimedia presentation.

Storyboards should include rough sketches of drawings, video, animation and still sequences as well as text, notes about music or special effects, and any directions as to how the presentation will flow.

Larsen says that "the storyboarding activity in itself is enough to interest and motivate most students." He also points out that schools that don't have access to sophisticated equipment might use the storyboards

(Continued)

Swift Instruments sponsors "MicroMentary" Contest

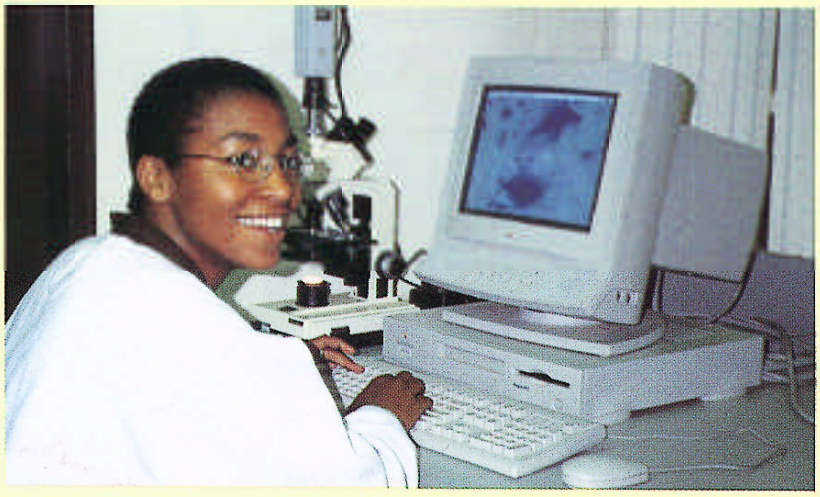
Student teams that want to enter the MicroMentary Contest sponsored by Swift Instruments, Inc. will have until December 31, 1995 to submit their entry. A MicroMentary is a three to five minute student-designed and student-produced documentary on some aspect of the microscopic world. Both high-tech and low-tech entries can be submitted, but only one entry per school is allowed.

Swift will select the best presentations in the following three categories:

1.Most visually compelling 2.Most creative concept 3.Most informative

All entering schools will receive a certificate of participation from Swift. The winning schools will receive a Swift microscope, and students on the winning teams will win individual prizes as well as a special certificate. Prizes will be awarded to representatives from the winning schools at the 1996 NSTA convention.

For more information and entry forms write to Swift Instruments, 1190 No. 4th Street, San Jose, CA 95112 or call toll-free (800) 523-4544.



to make a case to their administration about the importance of and need for technology in the classroom.

4 PUT TOGETHER THE FIRST DRAFT Using the storyboards as a guide, the group puts together a first draft. All graphics, text, and music should be in place. Some schools will have the capability of creating computer generated animation, extensive video sequences with fades and text overlays, and CD quality sound. Other schools may have to work with a handheld video camera, still photos, and typed text set to the music of a tape recorder. "You will be surprised at how far your kids can push even the simplest technology," Larsen remarks.

Larsen suggests that teams present their first drafts to their classmates and encourage feedback, and "To reduce the 'risk' to ego here, you might have classmates write down on paper three positive points about the presentation and one or two points of concern.

THE FINAL DRAFT

The creative process could continue indefinitely as students polish and refine their work. But at some point they have to present their completed work—the final draft.

Larsen advocates setting a firm deadline, and possibly tieing that deadline into a public showing of some sort. The students could show their film to their parents or to younger students in the school. There's also the possibility of putting the best presentations on videotape or CD-ROM or even publishing them on the Internet.

Larsen's students exhibited their MicroMentary to other classes as well as to parents and community members. "My students' reaction was all I could hope for," Larsen reports. "All of them had a smile of satisfaction coupled with the inner feeling that they had done something that had interested them and, at the same time, interested other people."

For questions about multimedia in the science classroom contact Jamie Larsen via e-mail:

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