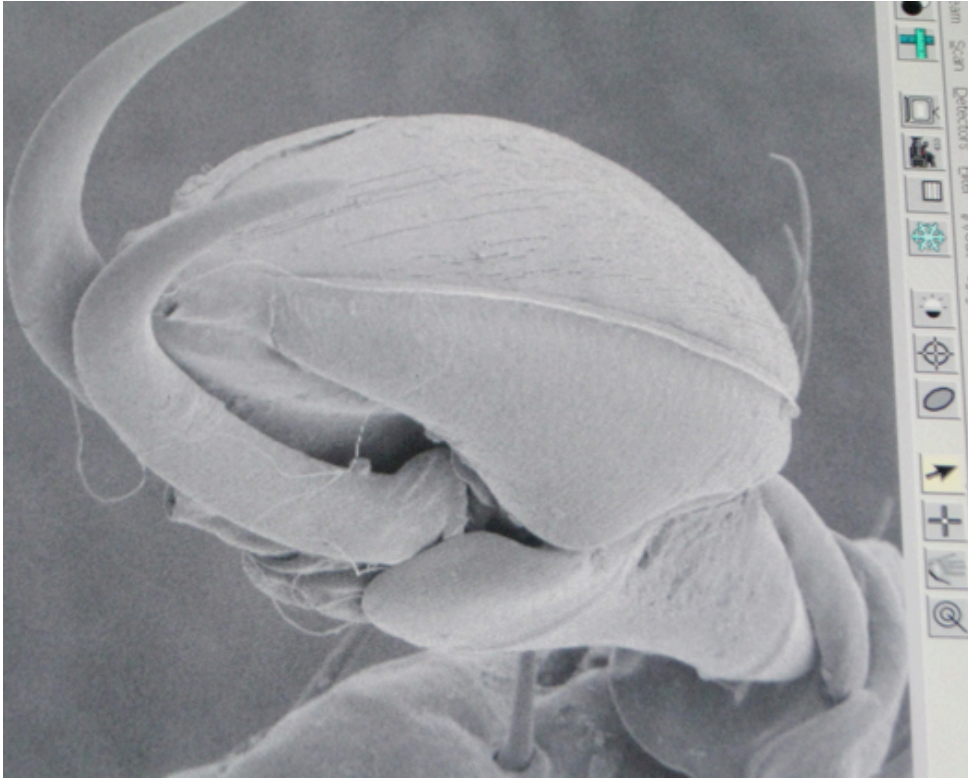


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*Alina Dain/Medill*

*A magnified image of the claw of a tick from the environmental scanning electron microscope.*

## Kids catch science bug with Bugscope

by **ALINA DAIN**  
May 13, 2009

Kids like creepy, crawly things. Researchers from the University of Illinois at Urbana-Champaign are taking advantage of this to teach kids science. With the magic of the Internet, they are enabling children from all over the world look at bugs through the university's environmental scanning electron microscope.

"We're using insects, electromicroscopy and this kind of gross-out factor," said Scott J. Robinson, senior research engineer at the Beckman Institute for Advanced Science and Technology. "We're using insects as a Trojan horse to get kids interested in science."

The Bugscope program, based at the Beckman Institute, allows children in kindergarten through high school to log on to a website and navigate the institute's environmental scanning electron microscope over insect samples of their choice. Over the past 10 years, researchers from the institute's Imaging Technology Group use the microscope to teach children about entomology and microscopy, and give them a general understanding of scientific research.

The microscope, which cost about \$600,000 when purchased about a decade ago, uses an electron beam to scan images instead of light, the researchers said. Before each session, the staff prepares insect samples often based on students' requests to see such insects as ticks, cicadas, moths and fruit flies.

The teacher and students log on remotely and access the microscope. As they observe the samples, the staff, and often an entomologist, monitor and use a live chat to answer the students' questions.

"If the students like it we can defer control to them so they can drive around," said Cate Wallace, a microscopist who participates in the program. This can be especially effective if a child appears to be bored.

"All of a sudden that kid has a responsibility and all the kids watch him drive," Robinson said.

The program began with about twenty sessions a year, but the microscopy staff now conducts about three Bugscope sessions a week,

Robinson said.

"It took us a long time to build up," he added, but the program continues to be successful. So far, more than 9,000 students from 41 U.S. schools have participated in the program, as well as students from schools in other countries, including Australia, Chile, China, Colombia, Honduras and Ireland.

Other institutions have tried over the years to set up their own bugscopes, Robinson said, but the bug just didn't catch on.

"When you do this for a while, when you recruit people, you realize that not everyone has the right attitude to do this," he said.

The secret of Bugscope, he added, is the rapport that the staff builds with each group of children.

The program follows no lesson plan. "We didn't come from an education perspective," he said. "The trick is for us to be polite, nice, engaged and try to play to the kids' questions."

Each session lasts about an hour.

"Any longer and you lose focus, especially with younger kids," Wallace said.

But even really small children who participate learn from what they are looking at.

"These are insects, and they can understand that they are insects, that they're 3-D," Robinson said.



Alina Dain/Medill

Before Bugscope sessions, researchers study each insect sample and save interesting images that the children can look through. The kids can also navigate the microscope themselves to any point they want.



Alina Dain/Medill

*Each Bugscope session runs with a live chat between the students and the staff. The staff guides the session and answers the children's questions. Sometimes an entomologist logs in to help with the questions.*

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