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## UI's Bugscope gives area students personal look at insects

By Jodi Heckel

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CHAMPAIGN - The images on the computer screen looked like something out of a horror movie. Giant jaws. A long, barbed extension. Claws covered with setae, or stiff, hair-like bristles.

"Grasshoppers have claws?" asked a student in Sheila Kirby's eighth-grade science class at Judah Christian School.

"That is so cool," another said.

Kirby's class was getting a close-up look at teeny, tiny bug parts, thanks to Bugscope, a project of the University of Illinois' Beckman Institute. The project makes a powerful electron microscope available to schools via the Internet.

Teachers submit a proposal to use the microscope, and they and their students supply the bugs. They mail them to the Imaging Technology Group at Beckman and arrange for a time to log on to the Bugscope Web site and look at the bugs in great detail.

Those in the classroom control the microscope, zooming in and out and focusing on different parts of the insect. Members of the Imaging Technology Group are online as well, answering students' questions about what they are seeing.

Those working on the Bugscope project usually work with about three classrooms each week, said Cate Wallace, a microscopist with the Imaging Technology Group. The group has its own stock of bugs for schools who haven't collected their own, and classrooms occasionally take a close look at objects other than bugs, such as salt crystals or fossils, Wallace said.

Kirby wanted her students to see a grasshopper, because they'll be dissecting them soon.

"What's that sort of horn thing?" asked Michael Perkins. Kirby told him to type in the question, and the answer came back: It's the palp, a part of the mouth like a little arm that helps the insect manipulate its food and taste it.

Then the class moved on to the claw, learning the setae help the grasshopper grip things.

"Pretty gnarly, huh?" wrote Alex Lazarezich, a computer technician with the Imaging Technology Group.

The students also looked at the head of a mosquito, with its compound eyes and stylet - the serrated, pointed



Robert K. O'Daniell

Elayna Kramer, right, an eighth-grader in Sheila Kirby's science class at Judah Christian School, asks a question while looking at a close-up image of a bug courtesy of the University of Illinois' Bugscope program. The program uses an electron microscope to show tiny bug parts in great detail.

weapon, looking like a little steak knife, with which it penetrates a person's skin.

The bugs looked different than what Michael expected.

"I thought it was going to be really smooth," he said. "It's all rough and stuff, and there's different parts. I like the eyes because they are bumpy."

Kirby's students made bug collections recently, and they'll eventually build an insect model with all the correct parts. Kirby is hoping the Bugscope project will give students a greater interest in looking at the insects when they are dissecting, maybe prompting them to pick up a magnifying glass for a closer look.

"They collect them but don't always stop and really look at them," she said.

Kirby wants them to develop "appreciation for all the intricacies that God has created. I'm hoping they have an appreciation or awe for how these insects are made."

### **On the Web**

For more information about the Bugscope project, see its Web site at <http://bugscope.beckman.uiuc.edu>.

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