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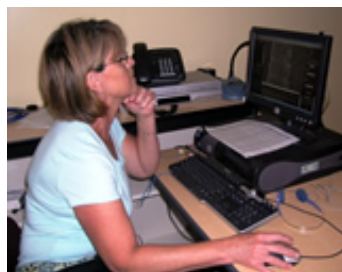
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DARE COUNTY
**FIRST IN
 FLIGHT**

Bugscope Project Redefines "Remote Control"**By Sharon Sullivan with Scott Robinson**

Posted Tuesday, June 5, 2007



Over the Internet, using a web browser, second-grade students at Nags Head Elementary School operated a \$600,000 electron microscope from the second-floor computer lab in real time on Monday, June 4. They were participating in the Bugscope Project, an ongoing educational K-12 outreach program sponsored by the Imaging Technology Group at the Beckman Institute for Advanced Science and Technology, part of the University of Illinois at Urbana-Champaign. As images streamed in from the Environmental Scanning Electron Microscope (ESEM) in Illinois, NHES students typed questions for scientists at the university campus while their teacher took the controls of the sophisticated microscope; later selected students controlled the microscope themselves.

Second-grade teacher Margie Tillett had discovered the project and made the application for her class to participate by designing an experiment with mealworms that were part of the



NHES second grade student

Kyle Penland reads the answers coming in to his computer from scientists on the campus of the University of Illinois at Urbana-Champaign to questions posed by himself and his second grade classmates in Margie Tillett's class in the Bugscope project they participated in during the last week of school for Dare County students. Kudos to Tillett's students, who were referred to as "unfailingly

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science kits used in second grade. With the help of NHES Technology Coordinator Cathy Evanoff, the entire second grade was able to join in to see -- in a way they had never before -- the three developmental stages of mealworms they had studied in class. They actually mailed their own classroom samples to the University of Illinois for the June 4 project date.



NHES

teachers Lora Whitehurst and Linda White observed the session with students from Internet-connected ceiling projectors in their classrooms while Evanoff assisted Tillett in the lab. Tillett's students, logged in by their first names, could ask questions of the scientists by typing them into a box on the web page; their answers came back at the bottom of the page.

Tillett explained to her students that they were seeing three samples (larva, pupa, and adult) from their own classroom science projects as she controlled the microscope from her computer desktop at NHES. Before the end of the session, most of the students had also taken a turn at "driving" the microscope.



Bugscope was started at the Beckman Institute in March 1999 with a primary goal of demonstrating that relatively low cost, sustainable access to sophisticated remote instrumentation could be made available to K-12 classrooms. Now approaching its three-hundredth session,

Bugscope provides a free state-of-the-art microscope resource for teachers that can be readily integrated into classroom activities. The title of the second-grade science section was



polite, super good kids," by Scott Robinson, of the Imaging Technology Group, Beckman Institute for Advanced Science and Technology at the University of Illinois at Urbana-Champaign, where the project is housed.

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"Mealworms, Awful or Awesome?" With the advantage of

Bugscope, Tillett said she hopes that her students will agree that they are awesome!



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