

investigators behind the research. The website also features virtual tours of each researcher's lab so visitors can see examples of the tools discussed. In addition, there is a detailed glossary of technical terms and a link to additional resources.

Although the content is written for high school students, the information is also appropriate for the general public, and the site has proved to be popular not only with students but also others surfing the web. "Our inquiries have come from many diverse backgrounds including an agriculture professor in Oman teaching an instruments course, a medical school professor giving a lecture on endocrinology, a hematologist at a hospital in Cambridge, United Kingdom, a home-schooled student, and a graduate student considering a future in toxicology research," says Uesugi.

As a testament to its value, Unsolved Mysteries received the Digital Dozen Award from the Eisenhower National Clearinghouse in March 2005, an honor given to exemplary websites for educators that feature current, accurate math and/or science content, that support school improvement efforts, and that have useful multimedia features or helpful navigation. The Oregon State COEC continues to build on the website's accomplishments by keeping the information fresh and engaging. An upcoming Unsolved Mysteries module will highlight the use of microarray techniques, focusing on zebrafish embryos as a model for understanding chemical toxicity and the impact of developmental toxicants on human health. Be ready to solve the next Unsolved Mystery in spring 2006! **—Tanya Tillett**

Top to bottom: Stockbyte; BPA

## Headliners

NIEHS-Supported Research

## Pesticides



### Neurobehavioral Deficits in Children from Agricultural Communities

Rohlman DS, Arcury TA, Quandt SA, Lasarev M, Rothlein J, Travers R, et al. 2005. Neurobehavioral performance in preschool children from agricultural and non-agricultural communities in Oregon and North Carolina. *Neurotoxicology* 26:589–598.

Most research on the neurobehavioral effects of organophosphate (OP) pesticides has focused on adult occupational exposures. However, the developing organ systems of children can be especially sensitive to these chemicals. Now NIEHS-supported scientists Linda McCauley of the University of Pennsylvania, Thomas A. Arcury of Wake Forest University, and Joan Rothlein of Oregon Health & Science University, with their colleagues, report modest differences in neurobehavioral performance between young children from agricultural communities and those from nonagricultural communities.

Research has shown that children may be chronically exposed to low doses of pesticides that do not cause symptoms evident in routine examinations. These exposures can result from hand-to-mouth behavior and more time spent on the floors of their homes and in contact with soils. They can also occur through food, drinking water, and indoor and outdoor use of pesticides. In general, children of agricultural workers are at special risk of pesticide exposure because their homes are usually close to fields where application occurs, and they can encounter take-home exposure on parents' clothing.

The researchers recruited children of Latino immigrants. All of the children recruited were aged 48 to 71 months. At least one parent of each child from the agricultural communities worked in agriculture at the time of the study. Neither parent of children from nonagricultural communities had worked in agriculture in the past year.

The researchers used a battery of behavioral tests to measure the children's cognitive and neurobehavioral function. Eleven of the measures showed no significant deficit between the two groups. However, the agricultural children did perform significantly worse on two tests: finger tapping (which measures response speed) and a test for visual memory. The results are consistent with effects seen in previous research on adults with documented low-level exposure to OP pesticides.

This study points out the need for additional larger studies aimed at determining whether low-level OP pesticide exposures produce deficits in standardized test performance among children of agricultural workers. It also illustrates the importance of proper pesticide application and good hygiene in pesticide applicators to prevent exposures in their children. **—Jerry Phelps**

