

WHAT'S THAT TROUT DOING IN OUR CLASSROOM?



Photo by Renee Bartley

At Burroughs School on Chicago's Southwest Side, middle-school students are examining trays of water that contain a medley of aquatic insects—caddisflies, hellgrammites, mayflies, and stoneflies. Dean Hansen, a Minnesotan who owns a Ph.D. in entomology from the University of Minnesota, encourages the students to pick up the insects gently and examine them. The young people hesitate at first, but gradually they begin to handle the tiny, wriggling creatures. "They won't bite," Hansen reassures them.

As the students turn them over, he guides their investigation with a series of questions: "How many antennae does the insect have? How many eyes does it have, and where are they? How many legs does it have? How many claws are on the end of each leg? How many wing pads? How is it breathing? How many tails does it have on its back end?"

BY CHRISTOPHER JOHNSON

These are all insects that trout feed on, and Hansen is a volunteer consultant for the Trout in the Classroom (TIC) program, a nationwide environmental education program for Grades K-12 that teaches schoolchildren about trout and the cold-water waterways they inhabit. It's a highly innovative, hands-on curriculum that brings young people into environments that many of them have never experienced before.

Trout Unlimited (TU), a national conservation organization dedicated to protecting and restoring trout populations and their



Photos by Christopher Johnson



habitats, has partnered with the Illinois Department of Natural Resources (IDNR) to bring the TIC program into schools throughout the Chicago area. Marvin Strauch, the Education Chair for TU's Oak Brook Chapter and a member of the organization's Illinois Council, says, "There are 26 programs going on in the state of Illinois. They're all in the metropolitan Chicago area. There are four TU chapters in Illinois. Each one of those chapters is participating with multiple schools."

Renee Bartley, who teaches science to sixth, seventh, and eighth graders at St. Patricia School in suburban Hickory Hills, explains, "The kids benefit a lot from the program. They learn the chemistry, and it's hands-on."

Kim Bennett, who also teaches at St. Patricia, adds, "They get the environmental aspect because they're in the field. Every year we have children who have never set foot in the forest preserve or in the outside wild. They say, 'Wow! The outdoors is wonderful!'"

In November of each school year, Burroughs, St. Patricia, and other participating schools receive a 55-gallon tank, a filter system, a cooler, a water pump, and gravel from the IDNR, which licenses the

program. They also provide the brown-trout eggs and food, without any cost to the school. The IDNR stipulates that the tank cannot contain any other animals or plants because of the possibility of contamination. The cost of the tank and other materials is about \$1,200, which the TU chapters pay for.

The students care for the brown trout as they begin their life cycle. With a chuckle, Renee Bartley observes, "At first they're very squeamish. They don't want to clean, but they clean. They siphon the tank. At the end of the program, when we tell them they're going to have to get into a creek and touch the organisms, they're like, 'I don't want to do this.' But they jump right in and they do it."

Hansen is the scientist-mentor, teaching the students about the feeding habits of trout and the cold-water streams that they live in. He grew up in Minnesota and recalls, "Fishing started at age five or so, with a casting rod and a worm on a hook. The neighborhood kids also did some worm fishing from the shore of nearby Lake Nokomis." After earning his doctorate, he did some teaching, but eventually he became a professional beekeeper. He's been volunteering with TIC for about eight years.

Hansen employs a holistic approach to engage students. He explains, "The cognitive domain—how many antennae does the insect have?" In the psychomotor domain, he encourages students to use their eyes and hands, to pick up the magnifying glass, to look closely. "Trust your eyes," he advises them. Just as important is the affective domain. "Do you hate insects?" he asks them. "How do you feel about them?"

In talking to the young people, he emphasizes that trout require clear, cold water, preferably lower than 66 degrees in temperature. He also touches on the fact that nutrients like nitrogen and phosphorous have harmed many Midwestern streams and rivers, reducing trout habitat and the insects they feed on. "In some streams in central Illinois," he says, "the population of stoneflies is down about 30 percent. Silt comes washing in, and pesticides wash into the rivers. You won't see stoneflies in the stream where we're going to release the trout. They were there a hundred years ago, but they're not there now."

The teachers reinforce the importance of keeping waterways clean for trout and other wildlife. Kim Bennett relates an incident that occurred as students were preparing to travel to the spring-fed cold stream near Rockford where they would release the trout. "Some students were putting on bug spray before we came down here," she recalls, "and we said, 'Don't do that because all you're doing is putting that bug spray into the water. And we have to

protect our water systems'."

After six months of raising and learning about the trout, the big day comes—releasing the fingerlings. On a warm day in early May, about 15 seventh graders from St. Patricia School ride a bus to the site of the rapidly flowing stream, which is about 15 feet across and shallow enough that the students can wade in.

Strauch, Bartley, and Bennett commandeer the students toward the stream, where they're going to do three things: learn about the chemistry of the waterway, examine wildlife, and release the trout. Assisting them are two volunteers from Trout Unlimited.

The kids wade into the stream and overturn rocks and boulders as they look for organisms. They gather insects, place them into ice-cube trays, and bring them up onto the banks of the stream. There they observe the insects, recognizing the physical details that they had identified in the classroom. They're more than attentive—they're rapt.

They gather water samples and bring them over to a table where Strauch has set up kits for measuring the chemical composition of the water. They test the water for temperature, pH (whether the water is acidic or alkaline), ammonia, nitrite, nitrate, and dissolved oxygen. According to Strauch, high ammonia readings would indicate the presence of animal or human waste, such as from a leaking septic system. Nitrate could possibly indicate run-off from farm fields. He says, "The students were getting readings of 0 for ammonia, nitrite, and nitrate. Trout need well-oxygenated water, and the

results were coming at 9 to 10 parts per million dissolved oxygen. That is pretty nice and high."

Finally, the release! Each student transports a brown trout in a water-filled plastic cup. The group lines up to release their fingerlings. A girl bends over and places the glass into the water, but the young trout stays in the confines of the glass. "Tip the bottom of the glass up," advises her teacher. She does so, and the trout slips into the stream. The life cycle of the trout continues.

I talk to several students, and they all emphasize what a positive experience this has been. Kim Bennett recalls, "We had a young lady a couple years ago who had never been in the outdoors. Literally she was covered head to toe when she walked out to take the bus. But she enjoyed herself so much that she went into environmental science."

Marvin Strauch emphasizes the importance of the TIC program in carrying out the organization's mission to protect and restore fish habitats. "There's no point to what we're doing," he stresses, "if the next generation is not ready to carry on this work." TU, for example, has undertaken the Trout Unlimited Driftless Area Restoration Effort to restore cold-water streams and rivers in parts of Illinois, Minnesota, Wisconsin, Iowa, and Michigan.

Trout Unlimited offers many other educational programs, including free one-day introductions to trout fly-fishing on Saturdays. For further information, check out www.troutintheclassroom.org or contact Marvin Strauch at youthed@obtu.org. □

THE CANCER PROJECT

Finally!

A prescription with side effects you want.

Blueberries and red beans are powerful remedies against cancer. Research shows that fruits, vegetables, and other low-fat vegetarian foods may help prevent cancer and improve survival rates. A plant-based diet can also lower cholesterol.

For a **free** nutrition booklet with cancer fighting recipes, call toll-free 1-866-906-WELL or visit www.CancerProject.org

The Balancing Center

Dr. Daniel J. Fedeli

*Integrative Chiropractic * N.U.C.C.A. Upper Cervical Technique
Innovative Bodywork * Revolutionary Movement Practices*

1165 North Clark Street, Suite 602, Chicago, Illinois 60610
www.thebalancingcenter.com **312.787.7222**

Stuttering Gets the Royal Treatment

King George VI, whose live broadcasts of hope and inspiration kept the spirits of the British people alive during the dark days of World War II, met the challenge of stuttering with courage.

If you stutter, you should know about this gentle and courageous man, dramatized in *The King's Speech*.

For more information on what you can do about stuttering, write or call us toll-free.

THE STUTTERING FOUNDATION®
A Nonprofit Organization Since 1947—Helping Those Who Stutter

800-992-9392
www.stutteringhelp.org

Post Office Box 11749 • Memphis, TN 38111-0749