



# 10 Great Examples of Aquaponics in Education

*List compiled by  
Rebecca L. Nelson*

## Shrewsbury Elementary School

Crystal McGee, Shrewsbury Elementary School, Shrewsbury, Pennsylvania, uses aquaponics to teach her fourth grade students (mostly 9 year olds) about science while they learn how to care for plants and appreciate what it takes to grow food. Life lessons abound as the students feed the fish and nurture the plants. Students are awarded for their efforts with a feast of delicious aquaponically-grown tomatoes, cucumbers lettuce and watercress. Some of the fourth graders have commented that growing the plants made them actually like to eat vegetables!



Teacher, Crystal McGee

In addition to helping to raise the fish and plants, the students utilize their math skills to determine their cost of growing each plant. This information is used to prepare the budget for seeds and supplies for the next year.

## The Island School In the Bahamas

The Cape Eleuthera Institute (CEI) was launched in February 2003 by the Cape Eleuthera Foundation to provide research opportunities for Island School students and to model sustainable systems for developing world places. CEI began research in aquaponic systems because it offers one potential solution to the need for sustainable food production in The Bahamas. The aquaponic system is used as a training tool for permaculture and marine science courses offered by CEI, but it is the students from The Island School that are responsible for monitoring and refining the system. [www.islandschool.org/aquaponics.html](http://www.islandschool.org/aquaponics.html)



Island School student,  
Corenthea Johnson

## PNJ Correctional Facility

Providence Junior and Senior High School, located within the Pendleton Juvenile Correctional Facility, in Indiana, uses hands-on learning to enhance education of 12-19 year old boys at this maximum security prison. The students propagate seeds, tend plants, feed the fish and maintain the fully-functional recirculating aquaponic system. A greenhouse, 30 feet wide x 60 feet long, houses the media-filled bed system in which they raise tilapia and a wide variety of vegetables. Most of the vegetables are donated to the 2nd Harvest Food Bank in Anderson, Indiana. Tilapia fingerlings to stock the fish tanks are raised in the school's biology class.



Horticulture teacher, Phillip Greenburg comments, "Besides teaching horticulture, I am teaching the students how to be a reliable and desirable employee. "The real benefit of the aquaponics program that I see is that the boys take pride in what they are doing."

## Sid's Ponds Aquaponic Center

Teachers, students and the general public will have the opportunity to learn about hydroponic and aquaponic technology at Sid's Ponds and Gardenscapes, Inc. in Hornby, Ontario, Canada.

Beginning fall, 2007, Sid's Ponds will offer a variety of tours of the aquaponic and hydroponic displays. Each tour will provide information specific to the group visiting. Sid's Ponds will also be offering workshops for educators and students. <http://www.pondclub.com/>



John Pade and Imtiaz Mustapha (owner of Sid's Ponds) during the installation of the initial aquaponic system

## Herring Gut Learning Center

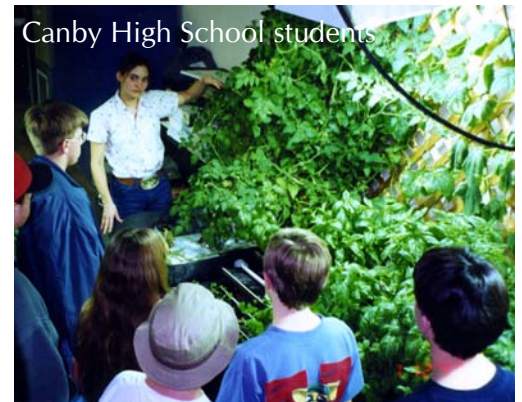
The mission of Herring Gut Learning Center is to educate students, teachers and the public about Maine's marine resources through aquaculture, environmental studies and research opportunities. In 2003, they received funding to construct an aquaponic greenhouse at their center in Port Clyde. High school students from the Rockland Alternative Education Program constructed the aquaponic system in the greenhouse. Since 2003 they have participated in its monitoring, care and maintenance; and have operated a small aquaponics business, marketing basil and other produce to sell to local restaurants and stores. Georges Valley High School students also began working in the greenhouse during the fall of 2005. During the 2006-2007 school year, about twenty pounds of basil were sold to local restaurants and stores. [www.herringgut.org](http://www.herringgut.org)



Students at Herring Gut Learning Center

## Biotechnology at Canby High

Canby High School, Canby Oregon, has an innovative biotechnology program called Alternative Growing Biological Environment (AGBE), which integrates aquaponics, agriculture, biological sciences and marketing, all with practical and theoretical applications. The program began in 1993 in the tractor shop, with the introduction of a 300 gallon water trough and a few fish. It quickly grew and by the 94-95 school year, they had a thriving aquaponics lab. In addition to maintaining the aquaponic and hydroponic systems, students are involved in tissue culturing, water testing and even built a traveling greenhouse to demonstrate aquaponics and biotechnology to neighboring schools and communities.



Canby High School students

## Aquaponics and Culinary Arts

Culinary Arts Instructor, Brook Harlan, teaches students advanced techniques in the Culinary Arts II class that give them the confidence and ability to plan, prepare and serve all types of foods, including a weekly restaurant-style buffet lunch each Friday. The Culinary Arts class at the Columbia Area Career Center in Columbia, Missouri has a state-of-the-art kitchen, comparable to some of the better restaurants in the country. But, unlike most restaurant kitchens, Harlan and his students don't have far to go when in need of fresh herbs. A kitchen-classroom aquaponic system provides cilantro for tortilla soup and salsa, fresh sweet and lemon basil for making pungent pesto and thyme to flavor stock. Many other herbs, plus the tilapia are grown in the classroom, harvested fresh and used daily in the preparation of a wide variety of foods.



Brook Harlan harvesting herbs

## Tunstall High School



Tunstall High School Faculty

Science and agriculture departments joined forces at Tunstall High School in Dry Fork, Virginia to teach students aquaponics, hydroponics, genetic engineering and biotechnology, to better prepare them for a multitude of career options, including agriculture, research, science and environmental specialties. A 20' x 30' greenhouse serves as the lab in which the plants and fish grow. Students study five specific areas: aquaculture, advanced plant science, hydroponics, biotechnology and environmental impact of aquaponics and individual lab sessions address topics such as photosynthesis, genetics, tissue culture, plant anatomy, plant and animal reproduction, the nitrogen cycle and water quality. <http://www.pcs.k12.va.us/schools/th/aquaponics.htm>

## The "Pfish" Project

A garage-sale assortment of aquarium equipment inspired Clare Kennedy, a high school biology teacher at Bergen County Academies, a public magnet school in New Jersey, to embark on an aquaponics endeavor that serves as a multidisciplinary project combining environmental engineering and computer software savvy. Students use mathematics to design the system and elbow-grease to get it up and running. They use their knowledge of zoology and botany to care for the fish and the plants. The hands-on use of equipment includes the tank, filters, aerators, heaters, balances, pumps and air compressors. Chemical analysis of the water introduces the students to the use of water-quality test kits. The project culminates with the students creating data-based spreadsheets and a website that displays their efforts and results.



Student at Bergen County Academy

## Technology Education

A personal interest in gardening led Devon Williams, Technology Education teacher at J.P McConnell Middle School in Gwinnett County Georgia, to use aquaponics to teach the bio-related technology portion of this module-based program. Other modules in the Technology Education class include Audio Broadcasting, Aerospace, Robotics, CAD and Electricity. To get the aquaponics component started, Devon wrote a series of grants that provided funding for the initial equipment in 2001. Students track the quality of the water and plant growth and make decisions about what steps to take to correct any problems that arise and they create graphs to show the changes in the system over time.



Devon Williams