

**Planting Seeds:  
The Green House Venture Introduces Grade Schooler to Urban Ecology and Growing**

*We seek to educate, excite, and equip an inclusive population of elementary students to pursue a sustainable world through hands-on experiences in bio-science and urban agriculture.*

Tom Purcell, President

In the heart of St. Louis's Shaw neighborhood, a stretch of highway embankment along Interstate 44 has been transformed into an innovative laboratory where hundreds of elementary-school students learn about ecology and sustainable growing, working alongside scientists seeking ways to convert roadsides into pollinator-friendly habitats.

Called the Embankment Greenway, this 3.7-acre 'classroom by the highway' is part of the campus of the Green House Venture, a non-profit STEAM education initiative that teaches science, growing, and nutrition to students in grades 4-6 at nearby neighborhood schools. According to Donald Stump, the Curriculum Director, "The Greenway provides a fascinating place where children can start seeds, carry out experiments, and explore subjects from soil composition and plant chemistry to ecology and the great cycles of nature."

At the heart of the Embankment is a Terrace Garden where students are learning to cultivate edible plants for food. Surrounding it is a restored expanse of native Missouri prairie that serves as the Venture's Pollinator Recovery Habitat. There, the Bee Laboratory of St. Louis University is conducting a first-in-the-nation study of ways to reverse the decline of native pollinator populations in the Midwest by focusing on repopulating roadsides with native bees and flowering plants. The study is being undertaken in response to Federal highway legislation calling on states to follow pollinator-friendly practices in managing roadside vegetation.

Venture educators have developed two types of special equipment called Discovery Stations to introduce young students to bio-science and urban agriculture in fresh ways. One is a computer-assisted growing chamber capable of controlling the color, duration and frequency of lighting; the watering cycle; the flow of air; and the injection of precise doses of nutrients at specified times in an eight-week growing cycle.

Located in the hallways of participating schools, the chambers allow not only the children conducting the experiments but also those passing by to watch plants grow and to learn from signage the implications of what is going on in the chamber. In that way, many learn and gain first-hand experience what it is to be a scientist.

The other main kind of equipment employed by the Venture is the cold frame. To extend the growing season, students try out various designs, practicing their building skills and analyzing the effects of special features such as a double-paned plastic shell, a reflective back, compost heaters, or a thermal ballast. These 'little greenhouses' are equipped with Bluetooth hygrometers and thermometers to broadcast data to staff, teachers, family members, and anyone else in range.

The students have several Spring planting activities underway. Having already sprouted various edible species in growing chambers, they will soon be transplanting them into cold frames and gathering data on conditions inside. As the danger of frost passes, the children will seed the

remaining areas of the terrace, experimenting with worm towers to turn compost into fertilizer. A scientist from the Danforth Science Center will lead sixth-graders in a citizen-scientist research project to identify mutant strains of corn that are promising for harsh environments.

Finally, in May, classes will take field trips to the Pollinator Habitat to study the more than thirty species of wildflowers involved in the bee study. Visits will include side-lessons on seed dispersal and the herbs and native Missouri plants being cultivated in the Terrace Garden by the Wild Ones and the Missouri Master Gardeners. Experience with indigenous and African American crops will also be available in terraces planted by Harris Stowe State University and a collaborative of the St. Louis Zoo and the Coahoma Nation.

Across from the Embankment at Lawrence and De Tonty is the site of the Venture's long-planned Education Center. A 9,000 square foot, state-of-the-art indoor and outdoor facility, it is designed as a hub for hands-on experiences in bio-science and urban agriculture. Included will be an aquaponic greenhouse, a trellis and green-wall courtyard, and a soilless rooftop growing area. It will also feature advanced technology to allow programming to be streamed to schools around the region and beyond. Fundraising to build the \$4.7 million facility is now in its public phase.

*Volunteers interested in assisting the Venture in its many planning, teaching, growing, administrative, and building activities are encouraged to contact Donald Stump (at [stump@slu.edu](mailto:stump@slu.edu)). Donations to support the Venture's work and build the Education Center can be made at [www.greenhousestl.org/growing-forward/](http://www.greenhousestl.org/growing-forward/).*