THE GREEN HOUSE VENTURE

IMPROVING SCIENCE EDUCATION AND CHILDHOOD NUTRITION

PROGRESS REPORT: SUMMER 2019

URBAN EDUCATION ALLIANCE

The core of **THE GREEN HOUSE VENTURE** is the Urban Education Alliance, which consists of four independent elementary schools with **more than 1,800 racially and socially diverse students**, coming together in a collaborative community setting **from 58 zip codes** throughout the St. Louis region:

ST. MARGARET OF SCOTLAND *{Parochial}*
3854 Flad Avenue, St. Louis 63110 • (314) 776-0363
www.smos-school.org @SMOSstl

MULLANPHY INVESTIGATIVE CENTER *{Public Magnet}*
4221 Shaw Blvd, St. Louis, MO 63110 • (314) 772-0994
www.slps.org/Domain/1294 @MullanphyPTO

TOWER GROVE CHRISTIAN ACADEMY *{Christian}*
4257 Magnolia Ave, St. Louis, Missouri 63110 • (314) 776-6473
www.tgcaonline.com @towergrovechristianacademy

ST. LOUIS LANGUAGE IMMERSION *{Charter}*
1881 Pine Street, St. Louis 63103 • (314) 399-4835
www.sllis.org @StLouisLanguageImmersionSchool

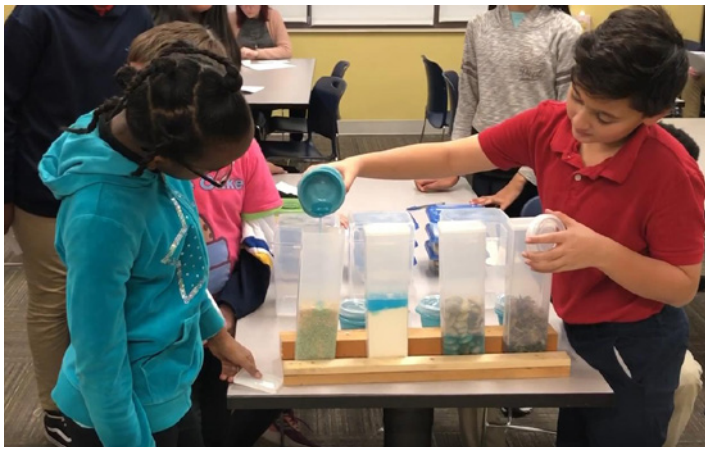
THE GREEN HOUSE VENTURE MAJOR AFFILIATIONS

THE GREEN HOUSE VENTURE has attracted enthusiastic interest and involvement from numerous institutions and organizations, all providing vital support and encouragement to further its mission.

Among the key collaborators, Saint Louis University has a played a major role from the outset of the Venture in the creation and development of the program. Other notable educational contributors include Washington University, Harris-Stowe State University, and St. Louis Community College.

From its beginning in 2015, **THE GREEN HOUSE VENTURE** *has been envisioned as a groundbreaking initiative, setting a nationwide standard for innovative elementary education in bioscience and urban agriculture.*

Grounded in its mission to educate, excite and equip elementary students to pursue a sustainable world, the program continues to make significant strides toward our vision.



THE PRIMARY GOALS FOR THE GREEN HOUSE VENTURE ARE TO:

1. Introduce children to a rich, hands-on learning experience that improves bioscience education.

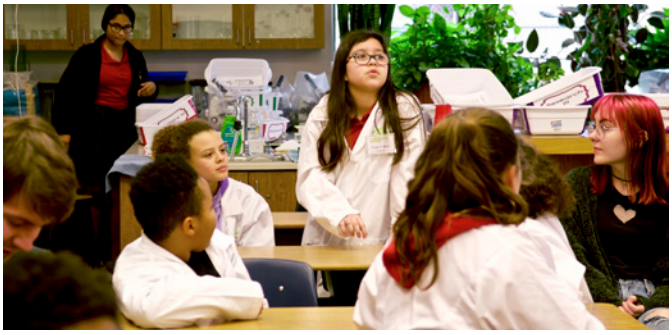
2. Increase student knowledge of and appreciation for proper nutrition, and encourage children and their families to adopt healthier everyday eating habits.

3. Lead more students to potential careers in bioscience to meet the pressing need to fill emerging jobs in science and agriculture.

AMBASSADOR PROGRAM

During this last school year, the Venture markedly strengthened its Ambassadors after-school program. New materials were developed, full of fascinating activities involving growing, weather and soil science. We began our Classroom Outreach Program to involve more students, and we introduced the Science Fair Curriculum.

The program teaches the scientific method using the rubrics and guidelines of The Academy of Science St. Louis – Science Fair Experiment. This method provides a well-tested and robust learning process, followed by thorough built-in assessment.



In the fall, students explored three kinds of soil and their effects on various kinds of plants. In the spring, they grew plants hydroponically in gravel infused with different mixtures of nutrients, and they explored chemistry and the soil-nutrient cycles that support all plant life.

For the first time, our experiments used "food computers," a new technology for our students that provides an enclosed growing system, allowing them to monitor and control all the variables of plant growth such as lighting, watering, temperature, humidity and nutrients. The computers collect environmental data and send them to the cloud, allowing access to information on what's happening to the plants, which students then turn into graphs and slide presentations.

FROM THE PARENTS

"Fun, interesting activities that encourage and develop my child's interest and understanding of science."

"I like the prolonged experiments. Shows students that it takes time and commitment to get results. Also like that the things you teach them are meaningful and applicable."

"Great field trips, many unique learning opportunities."

"The program helped my child understand science in a new way."

THREE-YEAR CURRICULUM

As our first formal program assessment based on state and federal science standards showed, it was a successful year full of promise for the future of the program. In planning for that future, we have developed a three-year cycle of topics:

YEAR 1

Teach the basic geology that builds up soils and the way main ingredients interact, followed by an introduction to chemistry focused on the natural cycles of nutrients within soils.

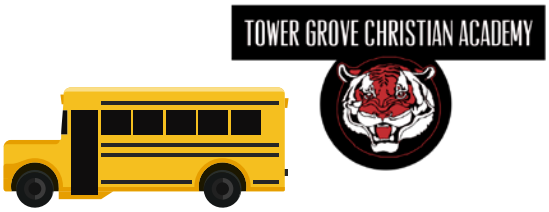
YEAR 2

Introduce the study of bacteria, worms, and other biota involved in replenishing soils through process of decay. That will be followed by the study of ecosystems, which the students will simulate in an aquaponics setup that creates the necessary interaction between plants, fish, worms, and bacteria to produce conditions for growth in a closed environment.

YEAR 3

Look outward to broader ecosystems around us, from forests to farms and deserts, followed by studying the influence of science, weather, erosion, and natural cycles of restoration and regeneration.

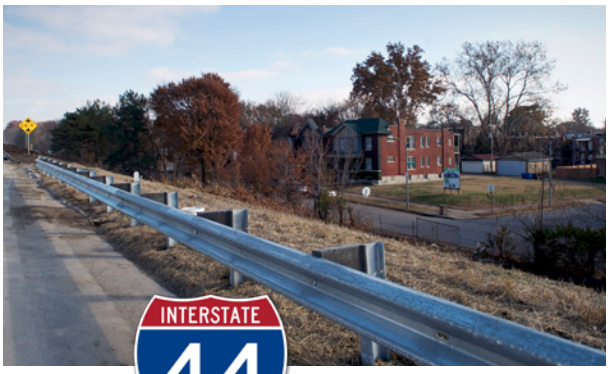
A fourth grader who enters the program in Year 1 will be able to advance in the knowledge of chemistry, biology, meteorology, geology, mathematics, and other disciplines through an integrated curriculum of hands-on activities and field trips that carries them through the sixth grade. The Venture plans to perfect and publish the curriculum, using it for both the Ambassadors and Classroom Outreach programs, and making it available to other students in the region and the country.

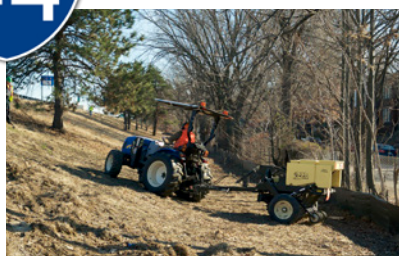


With transportation provided by Tower Grove Christian Academy, students from the four Alliance school have convenient access to participate in all weekly curriculum programs and field trips.

INTERSTATE 44 EMBANKMENT EDUCATION GARDEN

The overall Embankment Education Garden covers 3 ½ acres of Interstate 44 embankment. Work on the space will be completed in phases beginning with the *Terrace Garden*, which is set to be fully integrated into our Fall 2019 curriculum. With nearly 8,000 square feet, the *Terrace Garden* will feature a wide variety of plants and provide access for handicapped students.





During this past year, the Venture erected a guardrail required by our lease with MoDOT to provide protection for students working on the garden. We also cleared away the hodge-podge of scrub that was growing on the embankment, which has been replaced with a native prairie grass mix over the entire acreage. Other plantings were selected to attract and sustain pollinating bees and butterflies.

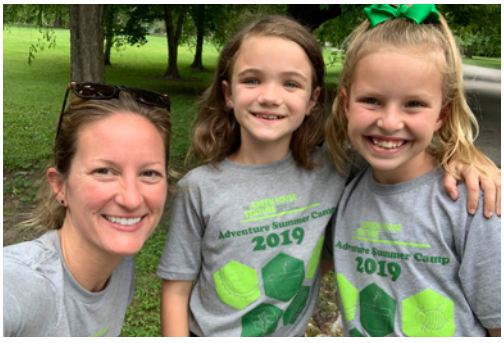
Construction for Phase 1 of this major feature of The Green House Venture was made possible through generous donations from Mysun Charitable Foundation, Ameren, Wells Fargo and others.

ADVENTURE SUMMER CAMP

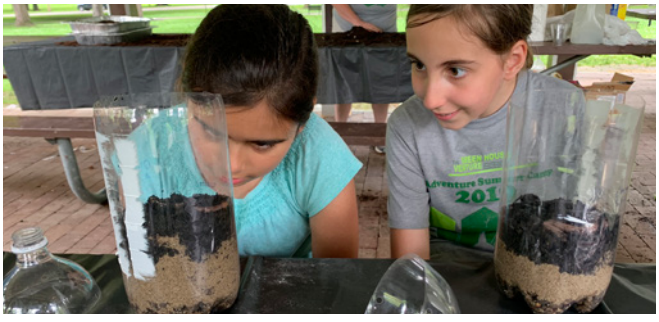
In its second year of operation, the Adventure Summer Camp was expanded from two weeks to three with more fun, more excitement and more diverse learning opportunities for students. Located in Tower Grove Park, the program is offered to 4th through 6th grade participants from the Urban Education Alliance Schools plus others in and around the Shaw neighborhood.

Camp staff consists of a director and two counselors who manage the program at the highest professional level. The dynamic curriculum includes a rich combination of science, planting, cooking, art, technology, athletics – all featuring exceptional speakers and specialists in each of those areas.

The expanded program includes valuable health lessons provided by the St. Louis University School of Nutrition and Dietetics. Students also receive meals and snacks daily from Operations Food Search free of charge.



Our Director, Emily Samuelson, with camp buddies



Studying the behavior of living organisms in making a worm hotel

FROM THE DIRECTORS

"We want students to learn the crucial importance of conservation and science education through engaging and meaningful ways. The Adventure Summer Camp provides that opportunity, cultivating young minds to be future environmental stewards and learning the importance of sustainability."

— Liz Hickox
Director of Community Programs, Tower Grove Park

"The best part of camp's activities is they are happening in nature for the campers. The campers walk away with a rich amount of knowledge from a diverse group of teachers and speakers."

— Emily Samuelson
Director of Adventure Summer Camp

GROWING FORWARD

Since **THE GREEN HOUSE VENTURE** began in 2015, the program has received **more than $235,000** in donations. Student participation has grown, and expansion plans will integrate the program into the general science curriculum for all students in the Alliance schools. Key projects for the future include the completion of the I-44 Embankment Education Garden and the construction of a state-of-the-art learning center.

Thanks to the generosity of numerous donors who have embraced the vision and mission of **THE GREEN HOUSE VENTURE**, the program continues on its path to set a nationwide standard for elementary education in bioscience and urban agriculture.

DONORS

- Wells Fargo
- Youthbridge/Kaufman Foundation
- Ameren
- MySun Foundation
- Kerr Foundation
- Vatterot Family Foundation
- Great River Confluence
- Saigh Foundation
- Mary Ranken Jordan
- Shaw Neighborhood Improvement Association (SNIA)
- Cardinal Care
- Purcell Family Foundation
- Bernard Purcell Foundation
- Villa Lighting
- Green House Venture Board Members

FUNDING FOCUS

- Interstate 44 Embankment Education Garden
- Ambassadors Program Curriculum
- Adventure Summer Camp
- General Operations

Contributions can be made through PayPal

PayPal

KEY PARTNERS

The scope and significance of **THE GREEN HOUSE VENTURE** has been reinforced through partnerships with notable organizations at the state and local levels.

Danforth Plant Science Center
National leaders in nutrition research and supporters of STEM education programs

Tower Grove Park
An exemplary Victorian park of international significance that provides recreational, educational and cultural opportunities for the public

MoDOT
The state highway authority, providing a world-class transportation system that is safe, innovative, reliable and dedicated to a prosperous Missouri

Operation Food Search
Distributing more than 35 million dollars worth of food and necessities to 330 community partners in 31 Missouri and Illinois counties and the city of St. Louis

Higher Education Advisory Committee
A consortium of representatives from notable colleges and universities in the St. Louis region.

The partnership with the Higher Education Advisory Committee has expanded the Venture's scope significantly. During the past year, students:

- Learned to make healthy pizza and studied greenhouse design at a Saint Louis University.
- Had a Family Science Day at Washington University where they played a game to simulate the global carbon cycle.
- Heard personal stories and college experiences of science majors at Harris-Stowe.
- Did genetics simulations to create their own imaginary monsters in the St. Louis Community College Science Trailer.

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