

# Living Food Towers Spark Youth and Community Wellness

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## Abstract

Urban G.E.M.S. (Gardening Entrepreneurs Motivating Sustainability) is a multi-faceted 21<sup>st</sup>-century positive youth development initiative designed to reduce high school dropout by enriching the science, health, personal, and career development curricula at two community sites that serve youth and families placed at high risk. The measurable goals and objectives of Urban GEMS are to increase student engagement through project-based learning and improve health-related knowledge, attitudes, and behaviors among the youth participating in our program. Urban GEMS aims to increase the youth's attendance, engagement in school, and their fresh fruit and vegetable consumption by 50 percent during the program. The Urban GEMS team will create a sustainable model that engages youth as leaders in developing and applying 21<sup>st</sup>-century skills to address local community needs as they work side-by-side with caring adults inspired by their passion for young people.

## Importance

The dropout crisis costs our society an estimated \$1.8 billion every year (Levin & Rouse, 2012). Dropout recovery and prevention are worthwhile investments that pay dividends when successful. Young people growing up in economically disadvantaged urban communities where the local public schools are poorly performing need alternative educational opportunities in order to have a chance at future success.

The link between food insecurity and school failure at a neighborhood level is well documented. Addressing both the educational and nutritional (basic needs) of young people growing up in economically challenged environments requires new thinking. The best chances of producing successful students come when schools offer a safe and respectful climate, dynamic and interesting courses, engaged teachers and staff, innovative programs and relevant extracurricular activities.

All of these things help create a learning community focused on positive outcomes for students and productive involvement of the larger community. Project-based learning rather than high stakes testing will produce well-prepared high school graduates who are poised to pursue college, career or service.

## Objectives

The desired long-term outcomes for Urban GEMS are to:

1. Increase teen engagement in high school/education through STEM and experiential learning program activities.
2. Increase nutritional knowledge to improve healthy eating and decrease unhealthy eating habits among participants.
3. Increase community involvement in changing patterns of food consumption.
4. Produce young people who are work and/or higher education ready.

The measurable goals and objectives of Urban GEMS are to increase student engagement in school through project-based learning and improve health-related knowledge, attitudes and behaviors among participating youth.

We aim to increase the youth's fresh fruit and vegetable consumption by 50 percent during the program. Students will build competencies in youth leadership, teamwork, project development, project management, microbusiness operations, professionalism, event planning, and Internet and social media marketing. They will also learn more about food safety, product development, branding, financial asset management, engineering solutions such as alternative, more energy efficient lighting systems, and connecting with career professionals.

As the youth are engaged in new activities and experiences, they will be asked to share their knowledge with their parents, guardians or other community adults to spread awareness of the benefits of healthy habits.

## Project Design and Funding

Urban GEMS was funded by the USDA/NIFA Children, Youth and Families at Risk (CYFAR) program beginning September 2015 and continuing until August 2020. The funding enables our team to dream, explore, invent and evaluate as we create something innovative to address basic needs. Urban GEMS represents a strong partnership between researchers at The Ohio State University, the Academy for Urban Scholars (AUS) Columbus, and Reaching Higher Heights 4-Life (RHH4-L). Dr. Deanna Wilkinson is the principal investigator from Ohio State, Ms. Emily Roe is the project director for the AUS site, and Ms. Tiffany Groce is the project coordinator at RHH4-L. OSU Extension Family and Consumer Sciences will provide classes on nutrition through Dr. Ana Claudia Zubieta's involvement as director of SNAP-Ed in Ohio, and the OSU Franklin County Extension Director Dr. Laquore Meadows is the program evaluator. National Center for Urban Solutions (NCUS) and the African American Male Wellness Walk Initiative (AAMWWI) are supportive partners



Urban GEMS was designed to prevent and reduce high school dropout by enriching the science, health, personal and career development curricular offerings at two community sites for youth and families placed at high risk. As students move through the curriculum and get more experience with aeroponic food production, they will develop new skills and competencies and be motivated to remain in school rather than dropping out. Urban GEMS features project-based learning and youth leadership opportunities, which include tackling real and significant challenges facing the African American community.

The Academy for Urban Scholars is a brick- and-mortar dropout and recovery high school serving high school students ages 14 to 22. Biology students at AUS have been growing food in their classroom and learning about aeroponic food production since September 2015. Through hands-on learning they have grown four cycles of crops indoors and have planted an outdoor garden of cold crops early this spring. The team has been able to observe the different ways student interact with and learn from the Tower Gardens during this planning phase. AUS students have begun benefiting from the exposure to urban gardening and workforce readiness training. Four students have already been hired and trained as aeroponic technicians. To date we have 4 towers at AUS, 3 at RHH4L, 1 at the Reeb Center. We will soon place an Urban GEMS tower at Community 4-all People, Local Matters, and the OSU Bell National Resource Center on the African American Male. Our aeroponic technician workforce will gain valuable career development through this part of Urban GEMS.

Reaching Higher Heights Community Care Center 4-Life is a local nonprofit organization serving the south side of Columbus. RHH4L youth have been engaged for two years in a summer community garden (outdoor) and with the indoor Tower Garden systems since October 2015. RHH4L youth meet every Wednesday after school to learn about aeroponic food production, nutrition, positive youth development and social justice advocacy. Adult mentors and volunteers join the youth in planting, maintaining and harvesting the produce from the Tower Gardens. Leafy greens grown on the 3 indoor towers have provided a fresh and healthy salad twice weekly for the Family Missionary Baptist Church's community feeding program.



## Participants & Advisory Board

The GEMS program will begin at RHH4-L during the 2016 youth summer camp, with the curriculum reaching the first cohort of approximately 40 youth ages 10-17. Youth will continue to be engaged once per week throughout the year, with a new cohort experiencing GEMS in 2017 and each year following. Once the curriculum is finalized and the next academic year starts at AUS, youth will be recruited in cohorts. Youth and their parents will provide informed consent and youth assent for minors to participate in this project and the program evaluation. By the end of the 2019-2020 school year, Urban GEMS will have educated approximately 300 young people at the two community sites.

Urban GEMS benefits from the active participation of an advisory board consisting of highly invested volunteers. Advisory Board volunteers have been recruited to guide program development and sustainability. We hope they will help us in creating impactful opportunities for AUS and RHH4L youth. In addition to students and parents, the following individuals volunteer their time on the Urban GEMS Advisory Board:

Chyna Adams, RHH4L Garden Club Secretary  
Renita Adams, Director RHH4-Life  
Dr. Robert Bennett III, OSU Diversity and Inclusion  
Dionte Brown, AUS aeroponic technician  
Mike Collins, Ohio Board of Education | Promotions One  
Dr. Keith Gooch, OSU Biomedical Engineering  
Perry Gregory, National Center for Urban Solutions  
Tiffany Groce, RHH4L Urban GEMS coordinator  
Thomas Gunn, AUS Life Coach  
Pastor Greg Henneman, CD4AP, HEAL program  
Mike Hogan, OSU Extension  
Aaron Hopkins, FMBC, Southside CAN President  
Vanessa Jester, African American Male Wellness Walk  
Meagan Johns, OSU student assistant  
Lisa Jones, Habitat for Humanity  
Kam King, OSU EHE Development Office  
Katarina Kucinic, OSU student assistant  
Pastor Frederick V. LaMarr, FMBC and RHH4L  
Iven LaMarr, FMBC trustee | RHH4L GC Advisor  
Michelle LaMarr, RHH4L Advisor  
Steve LaMarr, Independent Contractor/Builder  
Bob Leighty, Parsons Avenue Merchant's Association  
Jim Locke, IT expert, Team Omega  
Leslie Lopes, Principal, Pure Motion Creative  
Dr. Laquore Meadows, OSU Extension FC Director

Devin Mobley, AUS aeroponic technician  
Deja Moore, RHH4L GC Co-President  
DeMarion Moore, RHH4L youth rep  
Janazia Moore, RHH4L GC Historian  
Kirsten Muenster, AUS high school  
Michael Moody, Kossuth Garden  
Jenny Pope, Franklin Park Conservatory outreach  
Adrianna Prather, AUS aeroponic technician  
Kaylin Overdorf, OSU student assistant  
Lindsay Ricart, Juice Plus/Tower Gardens  
Emily Roe, Biology teacher AUS high school  
Jerry Saunders, Africentric Personnel Development Shop  
Gayle Saunders, The Saunders Company  
Ty Sealey, AUS Urban GEMS rep  
Mercedes Searcy, Urban GEMS assistant at RHH4L  
Victoria Strickland, Local Matters  
Alyiah Taylor, RHH4L Vice President  
Azyiah Taylor, RHH4L Co-President  
Shay Tolliver, Independent Film Maker  
Johnny Turner, National Center for Urban Solutions  
Chris Walker, OSU EHE/Extension OIT  
Noreen Warnock, Local Matters  
Tiffany Wilson, Nationwide Children's Hospital Gardens  
Terrell "TJ" Woodall, AUS aeroponic technician  
Dr. Ana Zubieta, Nutritionist OSU Ext. SNAP Ed

## Evaluation Design & Measures

We will employ a multimethod quasi-experimental design to evaluate the efficacy of Urban GEMS for producing measurable results. Participants will complete pre- and multiple post-test measurement so that each student can serve as his/her own control. We will examine individual change over time. Using a combination of self-reported survey data, academic achievement data, observational data and project documentation, we will triangulate the findings to assess which components of the program offer promise on improving the lives of young people. We will also focus on gaining a better understanding of resource needs and cost effectiveness of our program. We will replicate our findings by introducing the Urban GEMS program to other settings once we have successfully demonstrated that the program is in fact efficacious.

The primary outcome measures for the study are:

1. Youth will increase nutritional knowledge and consumption of fresh fruits and vegetables.
2. Youth will grow in self-efficacy, school engagement and feelings of belongingness.
3. Youth will make connections with two or more adults in the health/wellness and local foods production professions.
4. Youth will learn how to produce food in two systems, enabling them to compare and contrast aeroponic systems to soil-based raised bed garden systems.
5. Youth will become familiar with public health educational campaign marketing through service learning opportunities to improve community health outcomes for urban African American males.
6. Youth will be engaged as problem solvers in an African American community health and wellness initiative.
7. They will gain experience in educating others and working in cooperative teams.
8. Youth will demonstrate gains in a variety of 21<sup>st</sup>-century skills in STEM (e.g., leadership, problem analysis, problem solving, team work, workflow management, technology advancement, entrepreneurship and effective communication) as a direct result of the Urban GEMS experiences.
9. Urban GEMS will produce fresh vegetables and fruits for student/community consumptions and learning as well as small business incubation.
10. Urban GEMS will improve knowledge and awareness of eating for health and wellness within two high-poverty urban communities.
11. Youth will be workforce or higher education ready at the end of the Urban GEMS program.