Food Computer Program – Green Street Academy
High School Junior Science Class Outline
Melanie Shimano

Month/Year	Project Goals
October 2017	• Study history of agriculture and urban farming • Study history of computers and technology • Learn how to code in Python programming language and build Raspberry Pi (microprocessor) computers • Build three tabletop Food Computers and begin planting produce in the Food Computers and in soil gardens to compare growth patterns and rates • Study vertical gardening and aeroponics techniques to also add into the full-room Food Computer
November 2017	• Study and understand engineering design parameters • Study stakeholder-centered design to relate project to local communities • Make plans for full-room Food Computer • Begin building and collecting data on plants • Guest lectures from urban agriculture and technology industry professionals
December 2017	• Continue building full-room Food Computer • Set up computers, sensors, and other necessary instruments (grow lights, fans, dehumidifiers) in an automated system • Plant produce in full-room Food Computer • Guest lectures from engineering design industry professionals
January 2018	• Collect data from plant growth rates, Food Computer Room temperature/humidity/light/nutrient level, energy usage • Study food science and cook with Food Computer-grown produce • Compare hydroponics and aquaponics systems • Study fish health • Guest lectures from sustainability-related industry professionals
February 2018	• Study sustainability and how it relates to Baltimore City and Maryland Food Systems • Study alternative energy sources, such as solar power and alternative fuels • Continue to document plant growth rates • Calculate current Food Computer Room energy usage from different components (lights, Raspberry Pi, nutrient/water pumps, fans/dehumidifiers) • Guest lectures from food systems industry professionals
March 2018	• Compare energy calculations with actual energy use • Identify which components consume the most energy and other resources (water, added nutrients, etc.) • Calculate how much energy different kinds of solar panels can provide and how many solar panels would be needed to provide adequate energy for our Food Computer Room needs • Guest lectures from energy industry professionals

April 2018	• Revisit design methods and parameters to determine the best solution for implementing solar panels • Install solar panels and connect to Food Computer Room system • Continue to document plant growth rates • Continue to monitor energy usage in Food Computer Room • Guest lectures from alternative energy industry professionals
May 2018	• Continue to document plant growth rates • Continue to monitor energy usage in Food Computer Room • Discuss how we can use solar energy-powered indoor gardens in other places in our communities • Interview community members to better understand how we can implement solar-powered indoor farms throughout Baltimore City • Plan a meal around the produce grown in our indoor garden • Guest lectures from food and energy industry professionals
June 2018	• Conduct final analysis of plant growth rates in different systems • Conduct final analysis of energy usage with solar panels • Present findings at the Baltimore City Office of Sustainability Food Policy Action Coalition or another related meeting/conference • Eat meal from Food Computer Room produce with the entire high school