DUKE ENERGY®

Educational Foundation of Lake County

Educational FOUNDATION of Lake County

. 2018-19 Duke Energy Foundation STEM Grant

DEADLINE October 18, 2018 4:00 pm Foundation Office via Jackrabbit or Email

- This Classroom Grant is for 2018-2019 school year.
- Funds must be used to address a STEM related project.
- All funds must be used by May 1, 2019. A final program evaluation must be submitted by May 15, 2019.

Contact Information	
Applicant Name: Tessa Clark	Position: Teacher and Science Coach
School: Leesburg High School	
Address: 1401 Yellow Jacket Way , Leesburg, Fl 34748	
Phone: 3527875047	Fax: 3527875047
Email Address: clarkt@lake.k12.fl.us	

Detailed Project Information
Project Title: Growing it Green – This is a continuation of last year's project
What priority area(s) will your project address: STEM, Agriculture, Engineering, Energy, Biology, Environmental Science.
What is your estimated start date: December 1, 2018
Estimated number of teachers who will participate in this project: 6
Estimated Number of Total Students Impacted by project: 150
Grade Levels to be Addressed: 9-12

Program Background: Leesburg High School is the only Title I high school in Lake County. We have over 70% of our students on free or reduced lunch. We would like to engage more students in taking Career Technical Education courses and gaining certification in engineering and agriculture and energy programs. Our targeted group would be to reach out to more ESE students and ELL students and our female population. These groups are underrepresented in STEM and Career Technical Education courses.

The project incorporates engineering and IT concepts during the design and construction phase. The design will be done using a digital graphic design program. The project will support career technical education certification exams in engineering, agriculture, and energy programs. The project incorporates engineering skills to design and construct the aquaponics system using solar panels to run the pumps in a sustainable environment. The students enhance their math skills by calculating the required nutrients needed for the plants on a daily basis. Students will be required to collect data using digital probe ware and develop analysis documents to communicate results of the project.

Project Summary: The Educational Foundation of Lake County, and Leesburg High School is proposing Lake County Schools first ever Duke Energy Aquaponics Garden. Aquaponics is a method of growing crops without soil and raising aquatic animals in a symbiotic environment. Plants are grown

in rows or on trellises, just like in a traditional garden, but they have their roots in water rather than in dirt and then applying an aquatic animal to work in a symbiotic relationship with the plants to provide optimal water quality. This method has been around since the Mayans and we would like to bring it to our students. This STEM-based program focuses on high school biology, environmental science, our career technical education areas Agriculture, engineering, energy program. Leesburg High School will engage 150 students in designing, constructing and growing plants in a floating aquaponics garden using a natural retention pond on the school property. Successful program outcomes will include an increased interest in STEM courses and careers. Also, the vision of this aquaponics garden is to engage our feeder school elementary and middle school students to come over and learn this process as well as have our high school students teach environmental studies to these young people. The future vision is to make this an outreach environmental science learning facility for our community.

Need: *We have a need to attract students to STEM and our CTE programs at Leesburg High School. Our advanced sciences and CTE programs are underrepresented when it comes to females, ESE and ELL. Often our ESE and ELL students excel in their learning when they can exercise their kinesthetic and tactile skills in these CTE settings rather than in a traditional classroom. Attracting these young people will not only provide them with real world learning but also an opportunity to earn a certification in either, engineering, agriculture or energy that can lead to a successful career beyond high school. As for our female population, we just need to attract them to these programs and let them see that gender plays no role in these amazing CTE programs. Starting with an aquaponics garden and working across curriculum areas is a great gateway into attracting these groups of young people.*

Project Goals and Objectives: The goal of this project is to construct and maintain an aquaponics garden . The items that are produced through this project will be donated to the high schools culinary department to be used for events. The students will design and construct the aquaponics system. They will learn the fundamentals of core nutrients (nitrates, phosphorus, and potassium, etc.) necessary for plant growth The students will conduct experiments related to the effects of plant & nutrient variations on plant growth using Spark Probe ware to collect and analyze components of water quality testing – pH, temperature, turbidity, dissolved oxygen, phosphates, and nitrates. The staff will explain how the aquaponics system works and what tests need to be run to be sure the plants are getting the proper nutrients. The staff will assist the students with design, construction and maintenance of the aquaponics system at the high school. Students will take a field trip to UF Aquatics and Plant facility to learn about aquaponics and aquaculture and proper technique for collecting water quality data .

Evaluation Plan: students will participate in a survey about STEM careers and CTE programs. Students will have a pre/post assessment in each area of the aquaponics garden development, water quality data, and implementation of the program.

Budget				
Category of Expenditure		**Dollar Amount**		**Related Activity**
Professional Contracted Workers (i.e. stipend workers, trainers, work for fee etc.)		**200. 00**		**Substitute teachers to cover teachers that attend the field trips. Conduct monthly meetings**
Classroom materials		**50.00**		Seedlings to grow in the Aquaponics garden. Aquatic fish to grow. Student training on solar panels.
Printing				
Travel	x	**400.00**		Field trip to UF Aquatics and Plant Facility
Program supplies		**2500**		Materials to construct the Aquaponics garden
Computer Software				
Computer Hardware				
Other Equipment (not computers)	x			
Tuition/Training/Conferences				
Admission Fees	x			
Room Rental Fees				
Postage				
TOTALS		$3150.00		

Program Approved By:_____

Principal

Funds Payable to: _____

Address:_____

_____

Phone:_____ **Email:**_____

Requesting party has read and agrees with the funding policies of the Educational Foundation.

Signed_____ **Date** 10-18-18

To be completed by foundation staff/board

Program meets Duke Energy Foundation's Mission/ Funding Policy _____Y ____N

Director Recommendation:_____

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Executive Board Recommendation:_____

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_____

Executive Board Recommendation: _____