

Project Title: Can a Community Garden Cultivate Increased Consumption of Fresh Fruits and Vegetables in Children aged 10-12?

Grant Program: Academy of Nutrition and Dietetics Ann A. Hertzler Memorial Research Grant

Proposed Start Date: August 12, 2020

Proposed End Date: May 27, 2021

Funds Requested: \$10,143.13

Project Director: Group 4 members

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Abstract: Childhood obesity is a widespread problem in the United States that leads to subsequent health complications. Inadequate consumption of fruits and vegetables contributes to what has become an obesity epidemic. Research shows that increasing knowledge and self-efficacy through education on fruits and vegetables can lead to higher consumption of produce while decreasing obesity levels. Therefore, the purpose of this program is to increase children's fruit and vegetable intake. The intervention will include construction of a community garden for children, providing exposure to various types of produce. Additionally, the project will offer biweekly cooking demonstrations and nutrition education classes for the participants to attend to further educate each child on the benefits and uses of fruits and vegetables. Finally, the program aims to increase each child's self-efficacy around sourcing, preparing, and consuming produce. The intervention will target children ages ten to twelve who attend Englewood Elementary School in Tuscaloosa County, Alabama. Eligibility will include a score of at least a six out of ten on a Household Food Insecurity and Access Questionnaire. The program will run from August 12, 2020 until May 27, 2021. The success of the intervention will be assessed through attendance sheets and class summary logs recorded by each Registered Dietitian. Outcomes will also be measured using MS Excel based analysis of each baseline measure consisting of the Attitudes Survey and FFQ. The Attitudes Survey will be used to assess self-efficacy in utilization of fruits and vegetables and the FFQ will assess fruit and vegetable consumption.

Introduction: The prevalence of childhood obesity is a growing epidemic in the United States as it affects over 17% of children and teens.¹ Childhood obesity has a strong correlation with the development of chronic diseases such as type 2 diabetes, high cholesterol, high blood pressure, and other cardiovascular concerns.² Studies indicated a correlation of decreasing levels of obesity with increasing levels of education at a young age.³ Additional studies have shown that a hands-on learning experience, such as a community garden, allows children and families gain access to locally grown healthy foods, and simultaneously become educated on the proper way to care for and consume the fruits and vegetables (F&V).^{4,5} The absence of F&V in adolescent's diet is related to a decreased level of self-efficacy in choosing, preparing, and consuming the products which can result in selecting unhealthy snacks in place of F&V .⁶ Implementing an afterschool program for ten to twelve year old's, demonstrates how to build a community garden and the proper way to utilize the crops. Educating the participants on why consuming the fruits and vegetables is crucial also.⁵ Providing a community garden program in an area like Tuscaloosa County, Alabama where only two grocery stores per 10,000 people exist, will allow this population to benefit from the supply of fresh F&V.⁷ Ultimately, this will improve the children's overall self-efficacy, increase their consumption of F&V, and eventually lead to a decline in obesity rates. This program correlates to the individual and interpersonal levels of the social ecological model. Developing a stronger sense of self-efficacy is individual based as it addresses an individual's motivations and behaviors towards F&V consumption. The interpersonal level stems from the influence of peers, RDs, and volunteers when targeting changes within a group setting.

Needs/purpose statement: With the obesity rate in Tuscaloosa County, Alabama being approximately 35% and the lack of resources for fresh produce, the admission to this community

garden and education tool will greatly impact the families of this community.⁸ Roughly 50% of the Englewood Elementary School students qualify for free or discounted lunches due to the economic state of each family.⁹ This intervention would give children and families the tools needed to improve individual's health . With the intent of educating students on F&V and providing hands-on resources, including the community garden and cooking class, this program has the ability to increase consumption of F&V, improve children's overall self-efficacy, and ultimately lower obesity rates.

Goals & Objectives: The first goal of this intervention is to increase participant's fruit and vegetable consumption. The process objective is two Registered Dietitians (RDs) will provide a total of 18 nutrition education classes that will take place every other week for the duration of one hour offered from August to May. The outcome objective states at least 75% of the 20 participating students will report having at least one additional serving of F&V per day compared to the baseline *Food Frequency Questionnaire* (FFQ) (Appendix 4), by the end of the 38 weeks. The next outcome objective is throughout the 38 weeks, at least 75% of participants will increase consumption of a F&V as a snack 3 out of 5 days of the week during snack time. The second goal of this intervention is to increase participant's self-efficacy related to utilization of fresh F&V. The process objective is a total of 20 cooking demonstrations will be provided every other week for the duration of one hour offered from August until May distributed between the two RDs. The first outcome objective is during the 38th week of the program, at least 75% of the 20 participants will recreate a snack using all ingredients provided in a recipe from a cooking demonstration. The second outcome objective is at the end of the 38 week program, there will be at least a 25% increase from the baseline survey in those indicating on an *Attitudes survey* (Appendix 5) that they feel strongly confident in their ability to incorporate and create snacks using F&V on their own.

Methods: The 38 week after school intervention held on Tuesdays and Thursdays from 3:00pm to 4:00pm will be conducted from August 12th, 2020 to May 27th, 2021. Specifically, the intervention targets children, ages ten to twelve at Englewood Elementary School in Tuscaloosa County, Alabama to increase overall consumption of fruits and vegetables through utilization of a community garden established on the school grounds. The program will have one RD handling the cooking demonstrations and nutrition education segments and a second RD will focus on the community garden. Flyers and permission slips discussing the logistics of the program will be given to students in homeroom once a week for the entire month of May, in an effort to recruit 20 participants (Appendix 1 and 3). Requirements to participate will include: ten to twelve years old, attends Englewood Elementary School and scores at least 6 out of 10 on a *Household Food Insecurity and Access Questionnaire* (Appendix 2). Additionally, the flyer will be posted on a daily bulletin of the Nutritional Sciences Department at the University of Alabama in efforts to recruit two volunteers (Appendix 9). Volunteer availability is required on Tuesdays and Thursdays from 3:00pm to 4:30pm. RDs will receive monetary compensation while student volunteers will have the opportunity to receive a letter of recommendation from either RD. This recruitment process will last three months or until 20 participants have been enrolled. In mid-July, a 20-foot by 40-foot, wooden structure for the garden will be built by student volunteers and the two RDs. A grounds permit will be obtained allowing the build on school grounds.

Tuesdays will consist of working in the community garden and Thursdays will alternate between cooking demonstrations and nutrition education classes. Prior to the start date, a *Food Frequency Questionnaire* and an *Attitudes Survey* will be completed by each participant. At the conclusion, Microsoft Excel will indicate the increases or decreases in frequency and utilization of F&V. Every Tuesday will be spent learning new skills in the garden such as, removing weeds,

watering, and harvesting produce. One volunteer will be present to assist the RD and the participants with included tasks. Thursday sessions will alternate between nutrition education and cooking classes for a total of 38 Thursdays: 18 spent on nutrition education and 20 focused on cooking demonstrations. Additional permission to use a classroom for the cooking demonstrations and nutrition education sessions will be obtained. Each nutrition education class will cover material related to benefits of F&V, food groups, and a balanced diet led by one of the RDs (Appendix 6). An attendance sheet will be provided for participants to sign in (Appendix 7). The purpose of the cooking demonstration is to showcase the foods that are being grown in the community garden. Due to the unreliability of harvested produce, all ingredients will be store bought. The community garden's harvested produce will be distributed to students to be taken home, helping to promote a relationship with fresh F&V. The RD leading the cooking demonstration will present a healthy snack (Appendix 8) and a step by step process of how to create it. The RD and one volunteer will rotate from student to student to supervise. Students will vote to decide what snack will be re-created during the last week and the RDs will evaluate the performance. On the last Thursday of the program, students will complete the *Food Frequency Questionnaire* and *Attitudes Survey*, administered prior to the start of the program, to evaluate the progression throughout the duration of the program.

Evaluation: Attendance will be evaluated by a sign-in sheet and each sheet will be submitted to ensure at least 15 of the 20 participants attend each class. Studying the data entered in Excel from the baseline and follow up FFQs into an Excel will measure if 75% of participants consumed at least one additional serving of F&V and per day. The F&V consumption will be reviewed by the school teachers, trained to observe the students during snack time. Students will receive a sticker on a class incentive chart for every F&V eaten and at the conclusion of each month, the teachers

will submit the incentive chart to the project coordinators. Each RD will be trained on how to articulate the step by step instructions of the recipe to the participants for the cooking portion of the program. At the end of each cooking session, the students will present the snack to the RDs who will use a checklist to record that each ingredient was correctly executed (Appendix 10). At the final cooking session, participants will have twenty minutes to prepare the determined snack and the results will be collected to determine if at least 75% of the 20 participants were able to recreate the snack. Finally, participants will fill out an *Attitudes survey* and compare it to the baseline survey. Microsoft Excel will be used to determine if there is improved self-efficacy related to the ability of utilizing F&V.

Future funding: The intervention can be implemented in the additional fourteen elementary schools in the Tuscaloosa Country, Alabama school district.¹⁰ With limited resources for healthy food, high obesity rates, and a steady increase in the prevalence of diabetes in Tuscaloosa County, expanding this program to this population would be beneficial.¹¹ Monetary resources will be provided through the USDA's Community Food Project Grant which is designed to create community-based food projects with an emphasis on improving community food security.

Timeline:

Proposed Date(s)	Event	Personnel Responsible
April 2020	File approved grounds permit School classroom reserved	Project Coordinators
May 2020- August 2020	Enrollment period Student participants (handed out in homeroom) Student volunteers (handed at UA)	Project Coordinators
May 1st-30 th , 2020	Permission slips and informative flyers are handed out in home room	Given to school by Program Coordinator but distributed by teachers
June 30 th , 2020	University volunteers solidified	Project Coordinators
July 20 th -24 th , 2020	Construct the 20 x 40 wooden structure of the garden Order supplies (seeds and soil)	Registered Dietitian and Volunteers
August 5 th - August 12 th , 2020	Submission of baseline FFQ and Attitudes survey due	Participants, then Registered Dietitians turn in to Project Coordinators
August 12 th , 2020 - May 27 th , 2021	Duration of intervention	Participants, Registered Dietitians, and Volunteers
May 27 th , 2021	Final FFQ and Attitudes survey administered and completed	Participants, and then Registered Dietitians turn in to Project Coordinators
June 2021-October 2021	Compiling and analyzing of data	Project Coordinators

Budget:

Item	Price	Quantity	Total
Room Rental for Education Sessions	\$153 x first 5 wks	39 weeks total x first 5 wks	\$764.00
	<hr/> \$77 x last 34 wks	x last 34 wks	<hr/> \$2,618.00
Toaster Oven	\$44.99	1 toaster oven	\$44.99
Microwave	\$69.99	1 microwave	\$69.99
2 Registered Dietitians	\$29.43 / hr	X 64 1 hr sessions	\$1,884.00
		+ 5 hr x 5d for build	<hr/> \$736.00
Handouts			
- Recruit Flyers (1pg)	Color = \$0.15 / page	200	\$30.00
- Food Insecurity & Access (2pg)	B&W = \$0.05 /page	200	\$10.00
- Permission slips (1pg)	B&W = \$0.05 /page	25	\$1.25
- FFQs (2pg)	B&W = \$0.05 /page	50	\$2.50
- Attitudes Survey (2pg)	B&W = \$0.05 /page	25	\$1.25
- Attendance Sheet (1pg)	B&W = \$0.05 /page	50	\$2.50
- Volunteer Flyer (1pg)	Color = \$0.15 /page	100	\$15.00

- Cooking demo checklist (1pg)	B&W = \$0.05 /page	500	\$25.00
- Sticker Charts (1 pg)	B&W = \$0.05 / page	800	\$40.00
- Stickers	\$4.00 / pack	24 packs	\$96.00
Land plot for Garden	Grounds Permit: \$1,000 <hr/> Land: \$30 / yr	800 sq. ft.	\$1,000.00 <hr/> \$30.00
Garden Seeds			
Warm Season Vegetable Seeds - Swiss Chard (Mixed Colors) - Cymling (Patty Pan) Squash - Cayenne Pepper - Cherokee Purple Tomato - Brandywine Tomato - Long Green Improved Cucumber - White Eggplant - Jimmy Nardello's Sweet Pepper - Summer Crookneck Squash - Moon and Stars Watermelon	Mixed Seeds Variety Box (10 different packs of seeds): \$26	3 boxes	\$78.00
Cherry Tomatoes - Sweet gold	20 seeds = \$2.99	500 Seeds	\$74.75
- Sweet Aperitif	20 seeds = \$2.99	500 Seeds	\$74.75

- Zucchini	50 seeds = \$4.99	500 seeds	\$49.90
- Celery	250 seeds = \$2.15	750 seeds	\$6.45
- Basil	1400 seeds = \$1.95	1400 seeds	\$1.95
- Carrots	1,500 seeds = \$2.99	1,500 seeds	\$2.99
- Strawberries	300 seeds = \$3.99	900 seeds	\$11.97
- Lettuce	200 seeds = \$2.00	800 seeds	\$8.00
Tools for the Garden			
- Garden Foundation	\$14.57 / pc	20ft x 40ft garden 12 pcs <i>of 2" x 10" x 10'</i>	\$175.00
	<hr/> \$5.57 / pc	<hr/> <i>of 2" x 4" x 10'</i> <i>to cap off</i>	<hr/> \$67.00
- Topsoil	\$320 for 1 bag 1 bag = 10 cu. Yd	800 sq ft 8" thick 20 cubic yards	\$640.00
- Shovels	\$18.98	4 shovels	\$75.92
- Garden Cultivator, Shovel, Trowel Set	1 set of all 3 = \$10.15	12 trowels - <i>children can rotate tasks in the garden</i>	\$121.80
- Gardening Gloves	Kids pack of 3 = \$7.79	25 pairs = 9 packs	\$70.11
	<hr/> Adult pack of 3 = \$8.60	<hr/> 5 adults = 2 packs	<hr/> \$17.20
Produce for Cooking Demonstrations		<i>20 students - 5 extra servings in case of mistakes</i>	
- Ants on a Log	Celery: \$3.00 / head	25 servings	\$15.00
	<hr/> PB: \$5.00 / 13 servings		<hr/> \$10.00
	<hr/> Raisins: \$0.33 / serving		<hr/> \$16.89

- PB Banana Quesadilla	Whole Wheat Tortilla: \$0.56 / serving	25 servings	\$17.99
	PB: \$5.00 / 13 servings		\$10.00
	Banana: \$0.58 / 3		\$3.00
	Cinnamon: \$1.50 / 2.5oz		\$1.50
- Apple Sandwich w/ PB & Granola	Apples: \$1.50 / 3	25 servings	\$13.50
	PB: \$5.00 / 13 servings		\$10.00
	Granola: \$0.60 / serving		\$15.00
- Grape Poppers	Grapes: \$5.98 / 13 servings	25 servings	\$11.96
	Vanilla Candiquick Coating: \$5.50 / 16 oz		\$11.00
	Pecans: \$5.99 / 10 oz		\$5.99
	Toothpicks: \$7.40 / 500		\$7.40
- Vegetable Skewer	Black olives: \$1.40 / oz	25 servings	\$5.58
	Zucchini: \$1.20 / 3		\$2.40
	Broccoli: \$1.80 / lb		\$3.60
	Yellow tomatoes: \$2.98 / 12 oz		\$5.96
	Yellow pepper: \$1.38/pc		\$6.90
	Orange tomatoes: \$2.98 / 12 oz		\$5.96
	Carrots: \$1.00 / lb		\$1.00
	Red tomatoes: \$2.98 / 12 oz		\$5.96
	Red pepper: \$1.38/pc		\$6.90

	Hummus: \$4.72 / 17 servings		\$9.44
	Skewers: \$1.94 / 200pcs		\$1.94
- Cinnamon Honey Yogurt Dip	Vanilla Yogurt: \$2.48 / 32 oz	25 servings	\$9.92
	Brown sugar: \$2.00 / 2lb		\$2.00
	Honey: \$2.98 / bottle		\$5.96
	Cinnamon: <i>Already have</i>		\$0.00
	Apples: \$1.50 / 3		\$13.50
- Tomato Cheese Sandwich	Tomato: \$0.50 / pc	25 servings	\$6.50
	Cheddar Cheese: \$2.68 / pack		\$8.04
	Whole Wheat Bread: \$3.50 / loaf		\$14.00
	Salt: \$2.54 / 17 oz		\$2.54
- Caprese Skewers	Tomato: \$2.98 / 12 oz	25 servings	\$11.92
	Basil: \$1.50 / oz		\$6.00
	Mozzarella: \$3.98 / 16oz		\$11.94
	Balsamic vinegar: \$2.14 / 8 fl oz		\$2.14
	Toothpicks: <i>already have</i>		\$0.00
- Toadstool Salad	Eggs: \$4.12 / 18 ct	25 servings	\$8.24
	Tomatoes: \$0.50 / pc		\$6.50
	Lettuce: \$2.28 / 3 heads		\$6.84
	Cucumber: \$0.62 / each		\$3.10

	Mayonnaise: \$3.77/30oz		\$3.77
- Cookie Cutter Fruit Salad	Cookie Cutters: \$8.99 / 12 pcs	25 servings	\$17.98
	Watermelon: \$5.88 / pc		\$29.40
	Strawberries: \$3.46 / 2lb		\$9.92
	Apples: \$1.50 / 3		\$7.00
	Blueberries: \$4.24 / 18oz		\$8.48
- Chicken Boats	Walnuts: \$6.72 / 16 oz	25 servings	\$6.72
	Rotisserie chicken: \$2.99 / lb		\$18.00
	Apples: \$1.50 / 3		\$5.00
	Grapes: \$5.98 / 13 servings		\$5.98
	Scallions: \$0.78 / bunch		\$1.56
	Lettuce: \$2.28 / 3 heads		\$6.84
	Plain yogurt: \$2.48 / 32oz		\$4.96
	Lemons: \$0.56 / each		\$4.48
	Olive oil: \$4.12 / 16 fl oz		\$4.12
	Apple Cider Vinegar: \$7.00 / 16 oz		\$7.00
	Thyme: \$0.98 / 1 oz		\$0.98
	Salt: <i>Already have</i>		\$0.00
Black Pepper: \$1.98 / 1.5 oz	\$1.98		
- Roasted Turkey and Basil	Lettuce: \$2.28 / 3 heads	25 servings	\$2.28

Cream Cheese Pinwheel Sandwiches	Cream Cheese: \$3.48 / 16 oz		\$6.96
	Baby spinach: \$2.98 / 16 oz		\$5.96
	Basil: \$1.50 / oz		\$6.00
	Whole wheat tortillas: \$0.56 / serving		\$17.99
	Deli Turkey: \$3.28 / 4.5 servings		\$19.68
	Roasted pepper: \$3.17 / 24 oz		\$6.34
	Carrots: \$1.00 / lb		\$1.00
	Salt: <i>Already have</i>		\$0.00
	Black Pepper: <i>Already have</i>		\$0.00
- Fruit Parfait	Vanilla yogurt: \$2.48 / 32 oz	25 servings	\$17.36
	Granola: \$0.60 / serving		\$15.00
	Blueberries: \$4.24 /18oz		\$12.72
	Raspberries: \$4.18 / 12 oz		\$16.72
	Blackberries: \$3.78 / 12 oz		\$11.34
- Emoji Rice Cakes	Rice Cakes: 4.89 / 12 pc	25 servings	\$24.45
	PB: \$5.00 / 13 servings		\$10.00
	Banana: \$0.58 / 3		\$3.00
	Raisins: <i>Already have</i>		\$0.00
	Raspberries: \$4.18 /12oz		\$8.36

<p>- PB & J Tacos</p>	<p>PB: \$5.00 / 13 servings</p> <hr/> <p>Jelly: \$2.92 / jar</p> <hr/> <p>Whole wheat bread: \$3.50 / loaf</p> <hr/> <p>Strawberries: \$3.46 / 2lb</p> <hr/> <p>Blueberries: \$4.24 / 18oz</p> <hr/> <p>Graham Crackers: \$3.38 / box</p> <hr/> <p>Honey: <i>Already have</i></p>	<p>25 servings</p>	<p>\$10.00</p> <hr/> <p>\$2.92</p> <hr/> <p>\$14.00</p> <hr/> <p>\$3.46</p> <hr/> <p>\$8.48</p> <hr/> <p>\$6.76</p> <hr/> <p>\$0.00</p>
<p>- Zucchini Pizza Bites</p>	<p>Zucchini: \$1.20 / 3</p> <hr/> <p>Olive oil: <i>Already have</i></p> <hr/> <p>Mozzarella: \$3.98 / 16oz</p> <hr/> <p>Marinara sauce: \$5.42 / jar</p> <hr/> <p>Dried oregano: \$2.44 / 0.75 oz</p>	<p>25 servings</p>	<p>\$6.00</p> <hr/> <p>\$0.00</p> <hr/> <p>\$7.96</p> <hr/> <p>\$16.24</p> <hr/> <p>\$2.44</p>
<p>- Tuna Boats</p>	<p>Peppers: \$1.38/pc</p> <hr/> <p>Canned tuna: \$1.70 / can</p> <hr/> <p>Mayonnaise: <i>Already have</i></p> <hr/> <p>Tomatoes: \$2.98 / 12 oz</p> <hr/> <p>Cucumbers: \$0.62 / each</p> <hr/> <p>Skewers: <i>Already have</i></p>	<p>25 servings</p>	<p>\$17.94</p> <hr/> <p>\$22.00</p> <hr/> <p>\$0.00</p> <hr/> <p>\$5.96</p> <hr/> <p>\$3.10</p> <hr/> <p>\$0.00</p>
<p>- Cucumber Flower w/ Cheese Spread</p>	<p>Cucumbers: \$0.62 / each</p> <hr/> <p>Plain yogurt: \$2.48 / 32oz</p>	<p>25 servings</p>	<p>\$5.58</p> <hr/> <p>\$9.92</p>

	Chives: \$9.99 / 4 oz		\$9.99
- StopLight Snack	Celery: \$3.00 / head	25 servings	\$15.00
	Peppers: \$1.38/pc		\$4.14
	Cream cheese: \$3.48 / 16 oz		\$6.96
- Pepper Boats	Peppers: \$1.38/pc	25 servings	\$17.94
	Cream Cheese: \$3.48 / 16 oz		\$6.96
	Carrots: \$1.00 / lb		\$1.00
- Extra Ingredients for Final Demo	Sunflower seed butter (for peanut allergies): Cost of most expensive recipe + wiggle room:	25 servings	\$150.00
Plastic Cutlery	\$5.66 / case	Case 1000 spoons	\$5.66
	\$5.66 / case	Case 1000 forks	\$5.66
	\$5.66 / case	Case 1000 knives	\$5.66
Napkins	\$2.39 for 150	X 10	\$23.90
Paper Towels	\$8.05 / 12 rolls	24 rolls	\$16.10
Paper Plates	\$10.48 / 150 pcs	800 pcs	\$62.88
Aprons	Adults: \$3.00 / 5	2 adults	\$3.00
	Children: \$16.99 / 3	25 Children	\$152.99
TOTAL:			\$10,143.13

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Appendix 1: Participant Flyer



Appendix 2: Household Food Insecurity and Access Questionnaire

Adapted from: http://www.fao.org/fileadmin/user_upload/eufao-fsi4dm/doc-training/hfias.pdf

Name: _____

Household Food Insecurity and Access Questionnaire

The ten questions listed below are asking you to recall these instances over a four week period. The questions should be answered honestly using either yes or no. If you answer yes, please answer the second question regarding frequency of the event.

Number	Question	Response Options	Score
1	Over the course of the past four weeks, were you ever concerned where your next meal would come from?	0 = No (skip to Q2) 1 = Yes	
1 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
2	Over the course of the past four weeks, did you find your food resources were limited?	0 = No (skip to Q3) 1 = Yes	
2 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
3	In the past four weeks, has your household been able to buy produce?	0 = No (skip to Q4) 1 = Yes	
3a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
4	Within the last four weeks, have you had to skip a meal because of lack of food in the home?	0 = No (skip to Q6) 1 = Yes	
4 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
5	During the last four weeks have you had to eat a smaller portion because of lack of food?	0 = No (skip to Q6) 1 = Yes	

5 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
6	In the last four weeks has your household been able to get to the grocery store?	0 = No (skip to Q7) 1 = Yes	
6 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
7	Over the last four weeks did your household have to consume calorie dense foods because that is what you could afford?	0 = No (skip to Q8) 1 = Yes	
7 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
8	In the last four weeks, did your household ever worry that you would run out of food before being able to afford more?	0 = No (skip to Q9) 1 = Yes	
8 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
9	Over the past four weeks, was your only meal, your lunch at school?	0 = No (skip to Q10) 1 = Yes	
9 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	
10	During the past four weeks, have you gone to bed hungry?	0 = No 1 = Yes	
10 a	How often did this happen?	1 = Rarely (once or twice) 2= Sometimes (three to four times) 3= Often (more than tend times)	

Appendix 3: Permission slips

Englewood Elementary Community Garden

This program will be held after school on Tuesdays and Thursdays from 3:00-4:00 pm from August 12, 2020 to May 27, 2021.

In order for your child to participate this form must be filled out and either mailed or brought in person on the first day.

Can be mailed to:
123 Scholar Road
Newark, DE

Permission Slip

Name of Participant: _____

Emergency Contact name: _____ Contact Tel: _____

Any Allergies/Disabilities? _____

I give permission for my son/daughter to attend

Parent Signature: _____ Parent Name: _____

Appendix 4: Baseline *Food Frequency Questionnaire*

Adapted from: <http://www.srl.cam.ac.uk/epic/epicffq/ffq.pdf>

Food Frequency Questionnaire									
Foods and Amounts	Average Use Last year								
Fruit (1 medium fruit or specified serving)	Never of less than once/month	1-3 per month	Once a week	2-4 per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
Strawberries (1 c)									
Orange									
Grapefruit (1/2 c)									
Banana									
Grapes									
Pear									
Peach									
Apple									
Raspberries/Blueberries/Blackberries(1/2c)									
Mango (3/4 c)									
Watermelon (3 slices or 2/3 c)									
Pineapple (1 c)									
Kiwi									
Vegetables (Fresh or frozen)									
Carrots (12)									
Spinach (1 c)									
Broccoli/Cauliflower (1 c)									
Kale (1 c)									
Green beans (1 c)									
Peas (1/2 c)									
Cabbage (1 c)									
Brussels sprouts (1/2 c)									
Corn (1 c)									
Bell peppers (1)									
Lettuce (1 c)									
Cucumber/Celery (1 stalk)									
Tomatoes (1 c)									
Mushroom (1/2 c)									
Lentils, beans (1 c dry)									
Eggplant (3.5 oz)									
Potato/Sweet potato (1 large)									
Zucchini (half of medium sized)									
Squash (1 c)									

Appendix 5: Attitudes Survey

Adapted from: <http://www.researchcollaboration.org/uploads/Self-EfficacyQuestionnaireInfo.pdf>

How do you feel about fruits and vegetables?		not at all	a little	neutral	much	very much
1	I like fruit.	0	1	2	3	4
2	I like vegetables.	0	1	2	3	4
3	I like to try fruits I have never eaten before.	0	1	2	3	4
4	I like to try vegetables I have never eaten before.	0	1	2	3	4
5	I feel confident using fruits to make a snack.	0	1	2	3	4
6	I feel confident using vegetables to make a snack.	0	1	2	3	4
7	I feel confident that I will eat at least one fruit a day.	0	1	2	3	4
8	I feel confident that I will eat at least one vegetable a day.	0	1	2	3	4
9	I feel confident that I can eat a fruit that looks strange.	0	1	2	3	4
10	I feel confident that I can eat a vegetable that looks strange.	0	1	2	3	4
11	I feel confident in my ability to create a healthy snack using fruits and vegetables at home.	0	1	2	3	4

Appendix 6: Nutrition Education Class Topics

Date of Presentation	Nutrition Topic
Week of August 18th	What is nutrition
Week of August 31st	Energy Balance
Week of September 14th	What are carbohydrates, protein and fat
Week of September 28th	Food label
Week of October 12th	Balanced diet
Week of October 26th	Fiber
Week of November 9th	Brain Foods
Week of November 30th	Importance of breakfast
Week of December 14th	Whole grains
Week of January 11th	Portion Size
Week of January 25th	Plant based diet
Week of February 8th	Mindful/Intuitive Eating
Week of February 22nd	Sweeteners and Sugar
Week of March 8th	Hydration
Week of March 29th	Limiting Salt

Week of April 12th	Heart Health
Week of April 26th	Vitamins and Minerals
Week of May 10th	Preventing stress eating

Appendix 7: Attendance Sheet

Attendance Sheet

Lesson/Cooking Demonstration: _____

RD Name: _____

Date: _____

	Participant Name	Participant Signature
1		
2		
3		
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Appendix 8: Healthy Snacks for Cooking Demonstrations

Date of Presentation	Recipe	Recipe URL
Week of August 12 th	Ants on a log	https://www.healthline.com/nutrition/healthy-snacks-for-kids#TOC_TITLE_HDR_25
Week of August 24 th	Peanut butter, banana Quesadilla	https://www.healthline.com/nutrition/healthy-snacks-for-kids#TOC_TITLE_HDR_25
Week of September 7 th	Apple Sandwiches with peanut butter and granola	https://www.garnishwithlemon.com/apple-sandwiches-with-almond-butter-and-granola/
Week of September 21 st	Grape poppers	http://blog.candiquik.com/grape-poppers/
Week of October 5 th	Vegetable Skewer	https://tommysuperfoods.com/7-creative-kid-friendly-snacks-vegetables/
Week of October 19 th	Cinnamon honey yogurt dip, topped with strawberries	https://onesweetappetite.com/cinnamon-honey-yogurt-dip/
Week of October 19 th	Tomato cheese sandwich (use whole grain bread)	https://www.tarladalal.com/Tomato-Cheese-Sandwich-Kids-Afterschool-Recipe-41935r
Week of November 2 nd	Caprese Skewers	https://iowagirleats.com/caprese-skewers-with-balsamic-drizzle/

Week of November 16th	Toadstool salad	https://www.food.com/recipe/toadstool-salad-for-kids-188315
Week of December 17th	Cookie cutter fruit salad	https://witandwhistle.com/2011/07/05/cookie-cutter-fruit-salad/
Week of January 4th	Chicken boats	https://www.foodnetwork.com/recipes/food-network-kitchen/kids-can-make-waldorf-chicken-boats-3363922
Week of January 18 th	Roasted Turkey and Basil cream cheese pinwheel sandwiches	https://www.foodnetwork.com/recipes/food-network-kitchen/kids-can-make-roasted-turkey-and-basil-cream-cheese-pinwheel-sandwiches-3362682
Week of February 1st	Fruit Parfait	https://www.thequench.com/food/healthy-no-cook-snacks-kids/
Week of February 15th	Emoji inspired rice cakes	https://www.thequench.com/food/healthy-no-cook-snacks-kids/
Week of March 1st	PB and J tacos	https://www.delish.com/cooking/recipe-ideas/a22781682/pbj-tacos-recipe/
Week of March 22nd	Zucchini pizza bites	https://www.delish.com/cooking/recipe-ideas/recipes/a43638/mini-zucchini-pizzas-recipe/

Week of April 5th	Tuna Boats	https://www.superhealthykids.com/recipes/13-veggie-snacks-child-cant-resist/
Week of April 19th	Cucumber flower with cheese spread	https://www.superhealthykids.com/recipes/13-veggie-snacks-child-cant-resist/
Week of May 3rd	StopLight snack	https://www.superhealthykids.com/recipes/13-veggie-snacks-child-cant-resist/
Week of May 17th	Pepper Boats	https://www.eatsamazing.co.uk/fun-food-for-kids/creative-food-tutorials/10-fun-vegetable-snacks-for-kids
Week of May 24th	TBD (by participants)	

Appendix 9: Flyer posted at the University of Alabama



Appendix 10: RD Cooking Demonstration Checklist.

Final Cooking Assessment Checklist:

The student used all the ingredients listed in the recipe.

The student demonstrated the necessary skills to correctly prepare the fruit(s) and/or vegetable(s).

The student correctly re-created the presentation of the snack.

Score: /3