

Illuminate Competition Document

Hunger Hunters

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Nutrition After Hours

The poverty rate in America is increasing as the cost of living skyrockets. Many people that live at or below the poverty line consistently struggle with where their next meal will come from. Breakfast and lunch are offered to children in public schools either free or at a reduced price based on household income, but what happens after school? The average lunch time in American schools is between 11:30 am and 1:00 pm, with some schools serving lunch as early as 10:00 am (*Meal times for breakfast and lunch*). This is a problem as a child could go up to 19 hours without a proper meal if they are receiving no additional meals outside of school. Our goal in this project is to analyze accessibility to food provided by public schools and determine a way to input dinner as an addition to the school meal programs. We say ‘nah’ to hunger and strive to implement N.A.H. (Nutrition After Hours) in every school district in Arizona.

Poverty Rate

Unfortunately, in 2021, 37.9 million people were in poverty, with the rate in the United States for a family of four being around \$30,000 a year (*Poverty guidelines*). The poverty line in Arizona for that same family is around \$25,465 (*Arizona Poverty Statistics*). The cost of living in Arizona is estimated to be \$3,751.60 per month, and using that estimation, the cost of living per year is \$45,019.20 (*Cost of living in Phoenix*). There is around a \$20,000 difference between the cost of living and the poverty line. Therefore, everyone in between the cost of living and poverty line does not get free lunch, only reduced, which can add up every month. The average cost of groceries for a single person per month is around \$301 in Arizona. Based on the average income and the cost of food, there leaves little room for anything extra, even dinner.

Past Attempts to Make Change

In 2010, Former President Barack Obama and First Lady Michelle Obama established the Healthy Hunger-Free Act. This act “authorized funding for federal school meal and child nutrition programs and increased access to healthy food for low-income children” (*Obama White House Archives*). The main goal of this act was to establish a standard for healthy meals served in school. Schools would often serve meals that lacked protein, fruits and vegetables, and dairy while containing tons of fats, high sugar corn syrups, and processed ingredients. While this act did help to establish standards for meals, children still go hungry everyday, specifically at night time, once they leave school. This is where our mission to fill in the gaps becomes insanely helpful.

Food Insecurity and How it Affects Learning

Food insecurity is defined as a lack of food or lack of quality and sufficient food. It affects almost 20% of homes with children living in them (*Utah*). Children in poverty are often the most affected by food insecurity and studies have shown that young children affected by it are less likely to be ready to start kindergarten. These studies have also shown that those affected tend to test lower and have lower IQ scores as well as being more likely to retake a grade (*Utah*). During COVID-19, low-income households and minorities were significantly affected by this, and it is important to remember that “hunger is a fundamental issue that impacts all aspects of a student’s experience in school — including their ability to learn” (*The Education Trust*). Food insecurity is a serious problem that can be partially relieved by implementing a third school meal.

Our Plan: Phases

Our plan is to establish a way to input a school dinner program for low-income families. We plan on filing for a 501(c)(3) non-profit for our project, named Nutrition After Hours, or N.A.H. for abbreviation. There are three phases where these school dinners would be implemented into participating public schools in our area. Phase 1 of our plan is to enact these dinners for the school week, determining who would be the recipients of the meals, and figuring out our process for delivery. Phase 2 is tackling weekends and potentially expanding to other school districts while maintaining our expenses. Phase 3 is establishing a way to distribute meals during school breaks (winter, summer, etc.).

Our Plan: Food Resources

In order for our nonprofit to succeed, we would need support from corporate level companies. We would have meetings with grocery stores such as Whole Foods, Walmart, Target, and Fry's to form partnerships. We would first pitch our plan to support kids in neighboring areas and schools. We would explain that we could use their "ugly" fruits and vegetables, foods that are past their sell by date, and we could set up donation boxes in the front of the stores for other donations people would like to give. In exchange for this, we would post corporate shoutouts on our nonprofit social media and website. They would also receive a tax write-off for the goods donated. We would also work with local farmers to get fresh produce as many farmers have extra crops that they cannot sell and would be happy to donate or sell at a reduced price in bulk.

Our Plan: Sources of Labor

There would be five chefs each week that volunteer to cook the majority of our food. The rest of the volunteers would then package it up safely and deliver it to children at participating schools. Because high school students are normally in school at this time, we would like to offer the chance for college students, specifically ASU students, to earn extra credit in a nutrition class or some hands-on experience for a specific major that may need the experience. We would like to meal prep in some way, so potentially on weekends we could have high school age students helping us package and prep for the upcoming week.

Our Plan: Overhead Resources

In order to prepare and deliver our meals while following local health codes, we would need access to a commercial kitchen and a refrigerated van. The commercial kitchen could be shared with another restaurant, perhaps one that serves dinner. They could donate the space to us during the morning, we could prepare the meals, and be gone and cleaned up by the time they begin preparing food for the dinner customers. We would prepare the meals from 6am to 11am and clean the kitchen from 11am to 12pm while the meals are being delivered to the schools. The meals would be handed out during lunch so that students don't have to come back to the cafeteria to get the dinners and they will not forget to pick up the meals. The commercial van would be rented as well on an hourly or daily basis. We would need the van for 5 days per week. Enterprise truck rental has a cargo van in Arizona available to rent for \$33.90 per day, or \$678 dollars per month (Enterprise Truck Rental).

Our Plan: Budget

For our overall budget, we would have food donated and have a budget of \$500 per month to buy additional needs, kitchen space donated, pay \$678 dollars per month for the refrigerated van, and pay for 200 lunch pails valued at \$10 per lunch box over a 12 month payment plan. Our monthly costs would be \$1344.66 for the first year and \$1178.00 after month 12.

Our Plan: Meals

The Harvard School of Health suggests that in order to create a healthy meal, $\frac{1}{4}$ of the plate must be whole grains such as whole wheat pasta or brown rice, $\frac{1}{4}$ should be protein such as animal meat, tofu, or eggs, and $\frac{1}{2}$ of your plate should be fruits and vegetables. We plan to follow this formatting as closely as possible for all our meals. For the fruits and veggies, we would cater to picky eaters as much as possible. Fruits and vegetables that can easily be squashed or turned brown will likely be avoided. For easy storage and packaging, berries, apples, oranges, and unsliced bananas will be used. For vegetables, steamed broccoli and carrots, fresh carrots and ranch, and corn on the cob are likely the most appealing for picky eaters. The food would be arranged in an orderly fashion rather than mixed together to allow for better enjoyment of the food and to make it more appetizing. An important component of our design, while making the meals more accessible, would be to provide proper nutrition for the children. That is why making sure the nutritional value and portions for the kids are supported by reliable sources and confirmed by the chefs and food service workers that volunteer to help us in our mission. To help with the cost, as well as to reduce food waste, we will be using UglyFood, and/or suppliers

with visually unappealing foods that still hold the same great flavor, to provide us with cheaper ingredients.

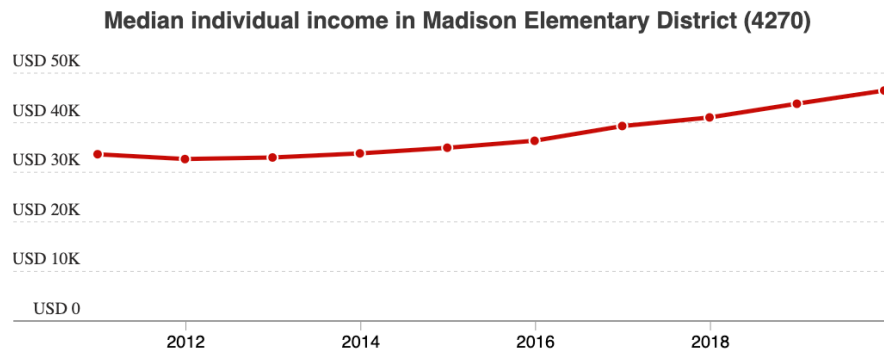
Our Plan: Lunch Boxes

Another part of our plan is to have special lunch boxes that are specifically for the dinner and would allow the food to stay preserved for hours at a time. These lunch boxes would be dual compartment boxes, lined with food-grade PEVA, a material that insulates the box keeping it cold or hot and is easy to wipe down and clean (Figure A). The lunch box will not be a metal tin but rather a stiff, stand alone bag that can protect the food inside from getting smushed. While the lunch boxes would act as a carrier for the food between school and home, the lunch boxes will also be easily recognizable to our volunteers giving out the food, acting as a student's "ticket" to get meals. Another amazing benefit of the lunch box system is that we could protect the environment from hundreds of paper bags getting thrown away each day and we would not have to buy these bags every day. It would be a one time donation/purchase that would save the nonprofit a lot of money in the long run.

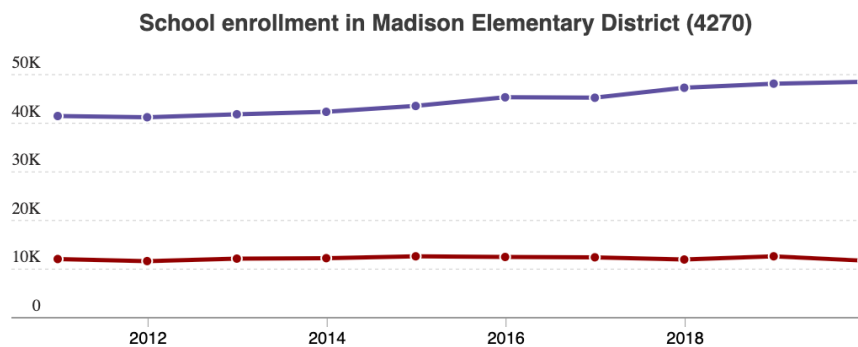
Our Plan: Community Partners

Because our project consists of filing for a 501(c)(3) non-profit, our community partners would largely be our donors. The donations that we would get from them would go straight to the production of the food and maintaining the space where we will be making the food. The non-profit would utilize a kitchen warehouse to prepare the food. We would then have volunteers distribute the food during school dismissal. The first school district we plan to implement this school dinner system in is Madison School District in Phoenix, AZ. Below is the chart for the

median household income in the district as well as the chart for the amount of children enrolled in the school district.



Data from census.gov via Data Commons



Data from census.gov via Data Commons

(Purple: enrolled students; red: not enrolled students)

Madison school district consists of eight schools, totaling nearly 6,000 students in the district (*Madison*). The benefit of using this school district is that it is a smaller district and the median income was a little over \$40,000 a year in 2018 (*Census*). This would mean that enough of the students fit our demographic for the application of the school dinner program and would allow us to establish and perfect it in a proper environment. This would go along with the first phase in our plan and would contribute to the set up of the second phase and any of our future endeavors.

Our Plan: Ways to Make Lunches Appealing to Students

Pediatric experts found that “up to 50 percent of children are reported as picky eaters by their parents or caregivers” (*Picky Eating: How to Help Change a Child’s Food Habits*). We would actively use specific foods that children may not find as good and rework them into something they would want to eat. There also may be a stigma to using the lunchboxes discussed in the previous section, so the designs would vary from a range of options and be discreet enough for children to not feel embarrassed or ashamed for carrying that lunchbox. There will also be options that are based on the child’s dietary and religious restrictions that will not affect the taste, quality, or nutrients of the meal.

About Us

There are three women behind the makings of Nutrition After Hours, Macy Abraham, Gosimuzo Alilonu, and Aubrey Clark. They are all high school juniors currently attending Xavier College Preparatory in Phoenix, AZ. These ladies are all dedicated and hardworking students while maintaining their rigorous after school activities. Learn more about the women behind N.A.H. in the following section.

Macy Abraham is a well-rounded student and is currently participating in 11 extracurriculars in addition to her part-time job. She is taking 4 AP classes this year and has been part of Xavier's great books program since freshman year. She has also been a fellow with Senator Christine Marsh since 2021 and helped lead her to victory in the 2022 election. Both political activism and representing her community are extremely important to the teen. While maintaining her grades and leading a group of 25 student interns to success, she also competes on the Xavier varsity mock trial team. She plans to go into medical law and finds it fascinating to take on new court cases each year. She is currently leading a campaign for the Leukemia and Lymphoma Societies' Student Visionaries of the Year program and has raised \$20,000 in the past month. Macy is also a member of NHS, the historian of Xavier's environmental activism club, has been a Girl Scout since 2012, and is currently earning her gold award in medical research.

Gosimuzo Alilonu is very active in her school. She is able to maintain straight As while also participating in other school activities and clubs like Drama Club, varsity basketball, Student Council, NHS, Computer Science Honors Society, and more. Even outside of these school activities she enjoys learning more about computer science but also has other interests, such as e-sports and hanging out with friends.

Aubrey Clark is an honors and AP student. She has many skills in leadership and product management in school and in her extracurricular activities. Aubrey is an active member of the Computer Science Honors Society, Key Club and the archery team. She also takes up a leadership role in the Xavier Robotics team, running the social media and building the robots, and as team captain of the Xavier Gatorline. When she is not taking part in these clubs, Aubrey is a part of a competitive hip-hop dance team in Gilbert. She also takes on the role of teen treasurer in the Sun Valley Chapter of Jack and Jill, Inc. Aubrey is very interested in business and computer science, and plans to major in them in college.

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Figure A

