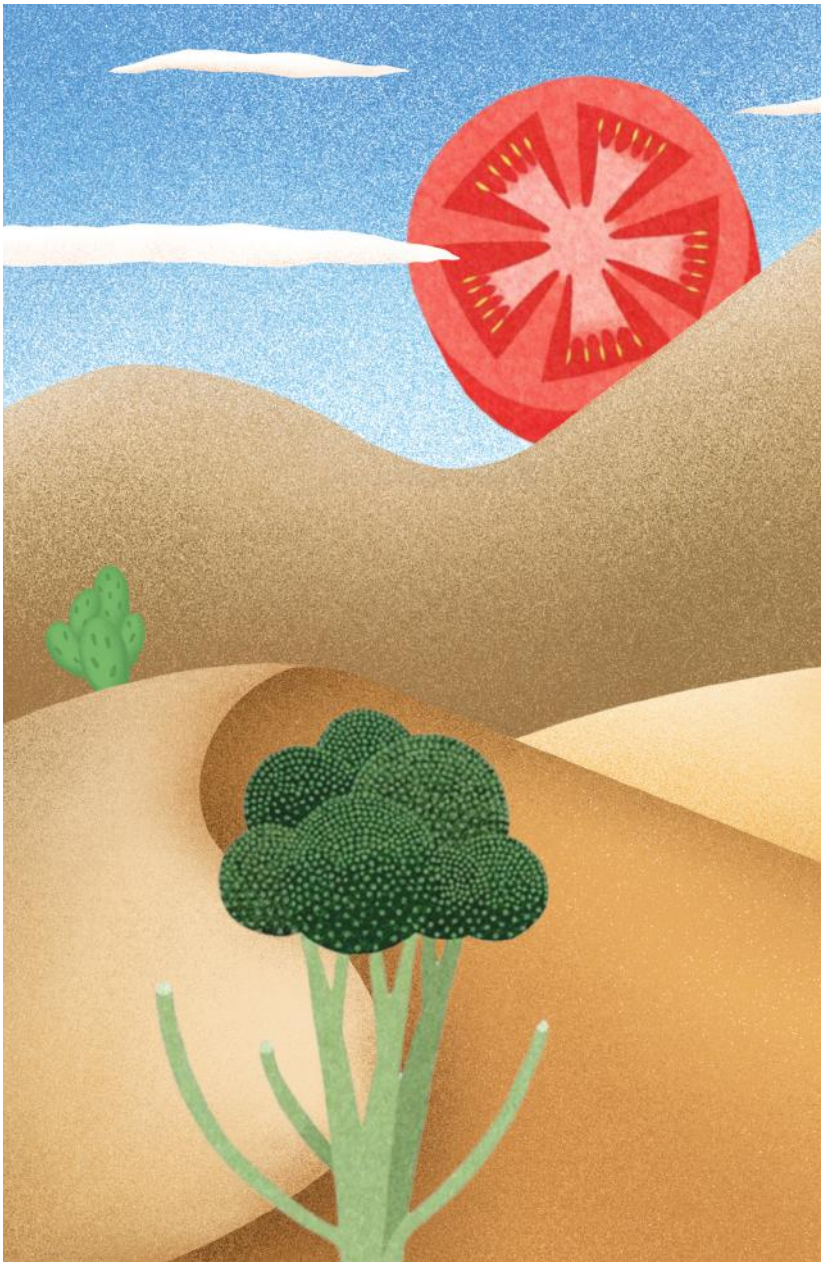
MVCD 2022

studio capstone project.

qijia “euca” you.



RITUCHARYA

Let’s eat seasonal foods & live your healthy life according to the flow of the seasons in the Arizona state.

A capstone project that focus on Arizonans’ dietary habit, and reconnection to local foods and producers.

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A capstone project that focus on Arizonans’ dietary habit, and reconnection to Arizona local foods and producers.

Qijia “Euca” You
RITUCHARYA
2021–2022

GRA 621/622 Adv. VCD Studio
Capstone Project 2021–2022

Committee

Michelle Fehler

The Design School
Arizona State University

CONTENTS.

"To accomplish great things, we must not only act, but also dream; not only plan, but also believe."

– Anatole France

About Me.

I am a UX designer with a background in Visual Arts. I dabble in creative things and love those simple designs that make the world different but people closer. After years of exploring, I found my passion lies in creating inspiring and satisfying interactive designs that improve relationships between technology and people from different backgrounds and cultures.

In summer 2021, I had an opportunity to intern as a UX designer in an educational industry. In these two months, I found that both educators and parents have realized the importance of education and put effort into the education of our next generation. I am also impressed by the power of education technology, which improves the learning experience for both students and teachers. Especially during the pandemic, education technology plays an increased role. By using education technology, students will have access to abundant resources for their self-study after school, and teachers can track and assess students' work more flexibly.

This unique experience makes me pay more attention to children's education now. At the same time, I believe that education can be experienced via a formal process like attending school or reading carefully chosen books, but it is also gained from practical life experience and advanced technologies. For example, the capstone project shows in this book will involove current situation of children's food education.

As a UX designer who resonates with regenerative design, I am glad to create products that kids, teachers, and parents can actively engage with the learning material, paraphrasing and emphasizing that technology is interactive and sustainable.

about
Regenerative Design.

Regenerative design is about ensuring the built environment and design process has a net positive impact on the natural systems. It calls for a rethink of designing and constructing the design project to improve societal resilience, restore planetary health, and regenerate ecological systems.

For me, regeneration design is still a new vocabulary and a new concept. In the first two years of study in ASU MVCD program, I learned something about sustainable design, but I found that regeneration design is much more beyond it. One fact I noticed is that most regenerative designs today are related to architecture and agriculture. Most discussion and case studies are about building regenerative buildings or cities that can harmonize and contribute to the growth of the surrounding environment and community. I believe it's not something that only architects or specialists should do. The task of healing the relationship between human and nature is assigned to everyone. So I believe educating the concept of regenerative is quite essential.

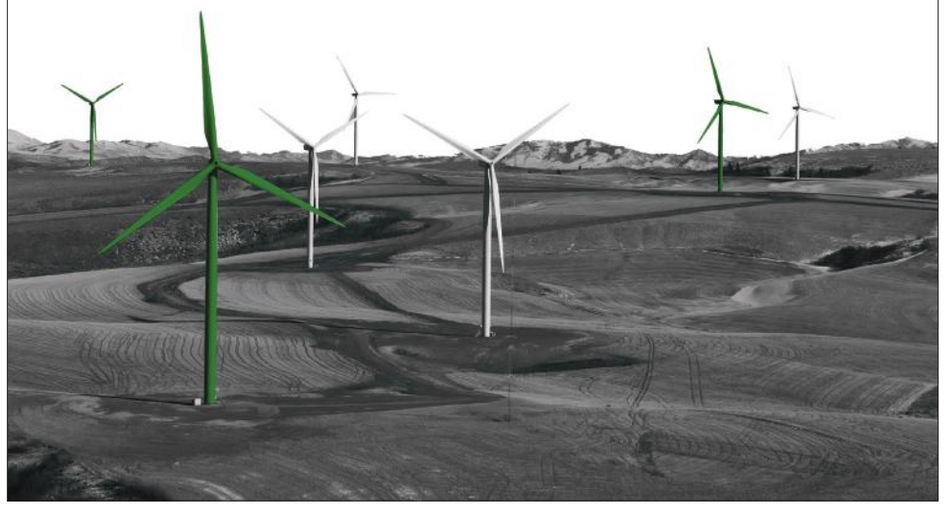
This semester, I found that farmers and food justice advocates are transforming the status quo with sustainable food systems and regenerative farming practices from some deep research on my capstone topic. I rethink my capstone project's design and construct should improve societal resilience, restore planetary health, and regenerate ecological systems.

Minimize energy consumption by reducing requisite temperatures, pressures, and time for reactions.

Material and Energy

Use Low Energy Process

Life reduces the demand for energy by employing strategies whenever and wherever possible that do not go counter to the general flow, but instead leverage energy flows advantageously. By concentrating fatty tissue in humps on their backs, ***CAMELS*** can minimize heat insulation throughout the rest of their body during the day when the temperature is high, and their body temperature rises.



Life's principles poster design

Life's principles poster design

life's principles.

Life's Principles are design lessons from nature. Based on the recognition that Life on Earth is interconnected and interdependent, and subject to the same set of operating conditions. Life has evolved a set of strategies that have sustained over 3.8 billion years. *Life's Principles* represent surviving and thriving on Earth. Life integrates and optimizes these strategies to create conditions conducive to life. By learning from these deep design lessons, we can model innovative strategies, measure our design against these sustainable benchmarks, and allow ourselves to be mentored by nature's genius using *Life's Principles* as our aspirational ideals. (Baumeister D, 2013)

EVOLVE TO SURVIVE	ADAPT TO CHANGING CONDITIONS	BE LOCALLY ATTUNED AND RESPONSIVE	INTEGRATE DEVELOPMENT WITH GROWTH	BE RESOURCE EFFICIENT (MATERIAL AND ENERGY)	USE LIFE-FRIENDLY CHEMISTRY
Continually incorporate and embody information to ensure enduring performance.	Appropriately respond to dynamic contexts.	Fit into and integrate with the surrounding environment.	Invest optimally in strategies that promote both development and growth.	Skillfully and conservatively take advantage of resources and opportunities.	Use chemistry that supports life processes.
Replicate Strategies that Work Repeat successful approaches. **Integrate the Unexpected** Incorporate mistakes in ways that can lead to new forms and functions. **Reshuffle Information** Exchange and alter information to create new options.	**Incorporate Diversity** Include multiple forms, processes, or systems to meet a functional need. **Maintain Integrity through Self-Renewal** Persist by constantly adding energy and matter to heal and improve the system. **Embody Resilience through Variation, Redundancy, and Decentralization** Maintain function following disturbance by incorporating a variety of duplicate forms, processes, or systems that are not located exclusively together.	**Leverage Cyclic Processes** Take advantage of phenomena that repeat themselves. **Use Readily Available Materials and Energy** Build with abundant, accessible materials while harnessing freely available energy. **Use Feedback Loops** Engage in cyclic information flows to modify a reaction appropriately. **Cultivate Cooperative Relationships** Find value through win-win interactions.	**Self-Organize** Create conditions to allow components to interact in concert to move toward an enriched system. **Build from the Bottom Up** Assemble components one unit at a time. **Combine Modular and Nested Components** Fit multiple units within each other progressively from simple to complex.	**Use Low Energy Processes** Minimize energy consumption by reducing requisite temperatures, pressures, and/or time for reactions. **Use Multi-Functional Design** Meet multiple needs with one elegant solution. **Recycle All Materials** Keep all materials in a closed loop. **Fit Form to Function** Select for shape or pattern based on need.	**Break Down Products into Benign Constituents** Use chemistry in which decomposition results in no harmful by-products. **Build Selectively with a Small Subset of Elements** Assemble relatively few elements in elegant ways. **Do Chemistry in Water** Use water as solvent.

Life's principles matrix

about
the Project.

People, especially children in Arizona, are disconnected from foods they eat. They do not realize that food is tied to many other aspects of life, including culture, politics, agriculture, health, and the environment. Especially children, they have no concept of how fruits or vegetables come from the ground here on Mother Earth. We need to admit that children might never learn the reason to protect something as vital as heirloom seeds could very well become a reality. If our children never know where their food comes from, will they be able to respect, connect, or even bond with the land?

Considering the concept of regenerative, I don't want to see the future generations of children see no value in working on the land so that no one will take on duties of sowing and harvesting food. Therefore, I want to understand why the disconnection appears, and what issues local producers face. After then, I will explore solutions to help people and children raise awareness of their food resources so they can obtain good, clean, and fair food.

life's principles for my project.

Incorporate Diversity

Disconnecting to local foods is a broad topic. I aim to learn about this topic from multiple platforms, and interpret this issue from different points of view.

Cultivate Cooperative Relationship

I wish different systems and platforms could cooperate to solve the issue. Their cooperation should share the risk and benefits, and finally achieve a win-win interaction. For example, promote the farm-to-school program, so school districts can collaborate with local farms and introduce the local food to students.

Use Multi-functional Design

My final design will be a platform(or a product) that provides multiple information. For example, a platform that students can learn about the nutrition value of their school meals and where their foods come from.

Biomimicry 3.8 Life's principles Leadership Cards

Problem Statement.

People, especially kids in Arizona, are disconnected from their food due to the dominant food system (DFS), a combination of habitual use of intermediaries (i.e., chain supermarkets), lacking of food education, international imports, low awareness, and many other factors.

Arizonan disconnect from their local food is a broad topic. Government policies, transportation, environmental issues, population growth, equity, and some other facts, are all related and indivisibly cause this issue. In fact, disconnecting from local and ethnic food will not only cause health issues of Arizonans, but also impact the local farms and producers. In order to make this study more rational and targeted, capstone research will focus on three large domains: People's behaviors and their awareness of consume local products, the situation of local producers and products, and actions that have been done and have potential to reconnect Arizonans to local products.

*animal welfare.

Latter research in this study will not focus on animal welfare, but we should understand that it is vital for the growth of Arizona's economy and food chain. Animals have played a critical role in agriculture throughout human history, providing us with labor, fiber and food and enriching the soil with their waste. Animals and crops have always been in a symbiotic relationship with one another; now, rather than viewing animals as sentient beings and part of the large interdependent systems, we have come to view animals as units of production. Americans believe that animals should have some protection from harm and exploitation, including 32 percent who believe they should have the same rights as humans (Farm animal welfare).

Arizona agriculture and agrculture business have more than a $23.3 billion impact on the state's economy. More than 30% of Arizona's 20,005 farms and ranches raise cattle, totaling almost 1,000,000 head (Guide to Arizona Agriculture, 2018). In Arizona, we enforce laws about moving, selling, importing, transporting, slaughtering, and stealing livestock. We also regulate food processing and manufacturing facilities and inspect the safety and quality of dairy, meat, and egg products produced or stored in Arizona. (Arizona Department of Agriculture)

Interconnected Circle.

An interconnected circle is a "snapshot of all relationships that matter." It helps represent key variables of the issued topic and how they are interconnected. Within this diagram, causal relationships between each factor will be connected by lines with arrows (Marketlinks, 2021).

In my interconnected circle (Fig.1, Interconnected Circle), I listed eight facts that might potentially cause the disconnection between Arizonans and their foods:

- Food access issues;
- Over-industrialized food chain;
- Climate condition;
- Lacks food education;
- Government policy;
- Land use issues;
- Poverty;
- Transportation.

People Are Disconnected to the Food They Eat

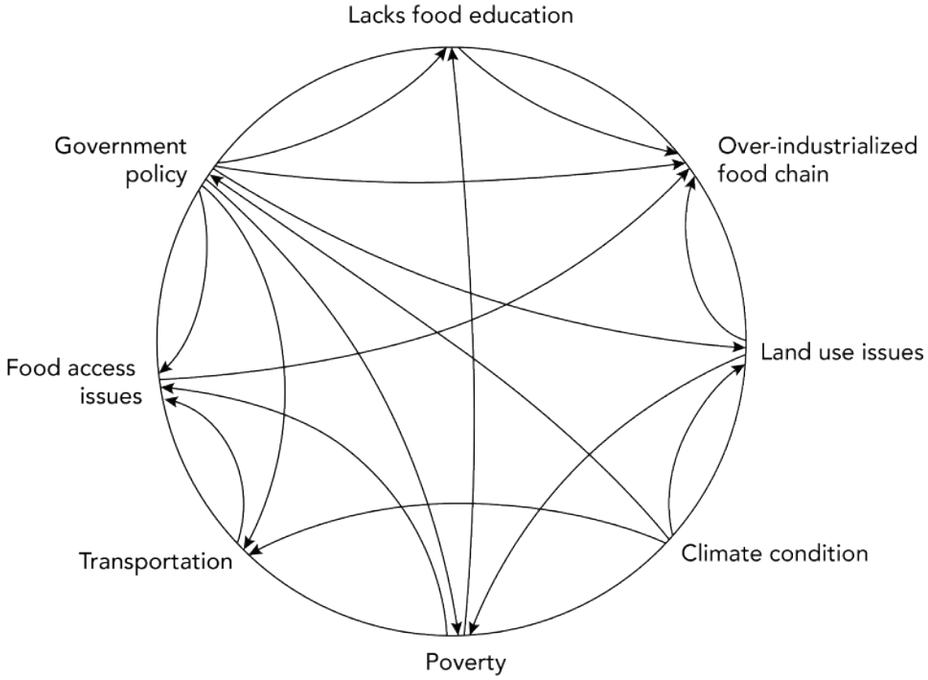


Fig.1, Interconnected Circle

All of these aspects are connected to each other tightly, and they become indispensable to cause this issue of disconnection. For example, drought in Arizona and increased resource demands are expected to cause frequent and severe strains on AZ's agriculture and food production. However, the government introduced a mandatory cuts on the water supply. It will be a threaten to Arizona's local agriculture products and livestock. Otherwise, the difficulty of accessing local food is an essential problem, forcing low-income families to purchase globalized and industrialized food instead of fresh local products. Additionally, lacks of food education are a fundamental cause of the issue. Most children in Arizona have fewer resources for food education due to many reasons, such as poor government policy and poverty.

Energy: Climate change (drought) and increased resource demands are expected to cause frequent and severe strains on Arizona's agriculture and food production.

Land use: Since the population skyrocketed in the 1990s, Arizona's farmlands have been paved over to make way for houses over the past two decades.

Governance: First-ever mandatory cuts on water supply will be a blow for agriculture in Arizona's top producer of cotton, barley and livestock.

Equity: Food insecurity is on the rise in Arizona. Most low-income households are spend close to 70% if their income on housing, with little left on food.

Research Questions.

	Literature Review	Ethnography Research	Survey & Interview
Main Question			
How to raise Arizonans' awareness of good, clean, and fair food by reconnecting them to the local products and producers?			
People's behavior & awareness			
What affects Arizonan's food choices?	🍎	🍎	
Why we need consume local food?	🍎		
Do Arizonans know enough about their foods and producer?			🍎
How is the food and nutrition education in Arizona?	🍎		🍎
Local products & producers			
What are some local products in Arizona?	🍎	🍎	
What are some issues local producers face in Arizona?	🍎		🍎
How do Arizonans access their local products?	🍎	🍎	
Solutions			
What has been done (organization, products, government policy, etc.) to raise Arizonan's awareness of local products?	🍎		

"The designer does not begin with some preconceived idea. Rather, the idea is the result of careful study and observation, and the design a product of the idea."

– Paul Rand

short summary.

I focused on the relationship between Arizonans and their food, not only because I indulge in food worldwide, but I found my life is now occupied by globalization and the industrialization of food, which is unhealthy in different ways. Therefore, my research aims to define a set of facts that caused some disconnections between Arizonans and local foods, including how people's food choice affect their health and the environment around them.

Before working on the design pieces, the fall 2020 semester was filled with brainstorming and research. I used various methods in my research process to gain as much information related to my topic as possible. Diagrams and the literature review on the next few pages will explain my research details. First, creating an interconnected circle helped me brainstorm my research direction. Otherwise, both qualitative and quantitative research allowed me better learn my topic in an evidence-based way. For example, visiting local farms and farmer's markets were my favorite parts of my design process. I had the chance to explore Arizona's local food and talk to local producers about their operations. Also, surveys were another essential part. From survey that I generated online, and some surveys which already have been done by government and organizations, I essentially understand the current status of school and home-based food education in Arizona (Maricopa County).

I have to say that the research process was tedious, and there were always some new ideas that came out and forced me to research more and in different directions. However, these researches helped me frame my topic, clarify my goal, and enrich my ideation. Through this semester's research, I believe I better understand and empathy with my audience, and have enough resources and evidence to support my designs.

Secondary Research.

Due to the limited budget, time and resources, secondary research was used as the primary source of my information collection. Secondary research is a type of research that has already been compiled, gathered, organized, and published by others (The Hartford). I accumulated a considerable amount of information from scholarly articles, books, and other online sources about Arizona's irrigation, distribution, food education, general awareness of the population regarding local food, etc.

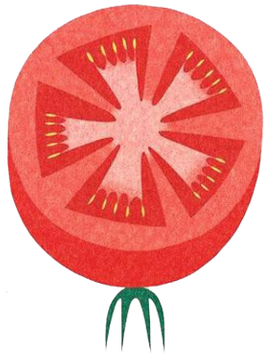
Through the secondary research, I found that the combination of those problems not only affects agriculture as an entrepreneurial path but also causes a slow decline in Arizona's culturally local food. It takes a lot effort from scientists, educators, farmers, businesses, general population, activists, and households to reverse these processes, and despite the Covid-19 pandemic, such a reversal is currently underway.

literature review.

A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in the existing research. A good literature review does not just summarize useful sources—it analyzes, synthesizes and critically evaluates to give a clear picture of the state of knowledge on the subject (Shona McCombes, 2019).

Nowadays, globalization and the industrialization of food occupy most people's lives. The state of Arizona presents an excellent case example to investigate the scholarly works on people's disconnect with the food they eat. In this discourse, it is evident that food is a fundamental component in people's lives. However, people, especially children in Arizona, had a dwindling interest in their food, where it comes from, and how our food choices will affect the world around us. According to Gibson (2017), if ten people are picked randomly in Arizona, one of them has limited access to healthy foods.

Above all, there are various factors why this food disconnection occurs in Arizona, subsequent impacts associated with the disconnection, and practices that can be adopted to ensure a healthy lifestyle in the diet people of Arizona take. Therefore, the following literature review discovers this critical issue from these perspectives: food accessibility in Arizona, food education (school and home-based) and people's awareness of consuming health and fair food; local products and local producers; consequences of food disconnect; solutions to reconnect Arizonan to local products.



Literature Review Matrix.

This literature review matrix provided an overview of some topics that were searched related to my problem statement.

	Climate facts	Consumer awarness	Consumer behavior	Food education	Food security	Food supply chain	Health issues	Land use	Local products	Marketing	Pollution	Solutions	Urban agriculture
Adams, K. M.et al. (2015). *The state of nutrition education at US medical schools. Journal of Biomedical Education , 2015* , 1-7.				X									
America's Health Rankings. (2021). *Explore food insecurity in Arizona | 2021 health of women and children report.*									X				
Angela. (2021). *Arizona Vegetable Planting Guide: A visual guide for low desert vegetables* .	X			X	X	X			X	X		X	
Arizona Department of Agriculture. (2018). *Guide to Arizona agriculture* . Phoenix: AZDA.													
Arizona Department of Agriculture. (n.d.). *Food access* .							X						
Beecher, C. (2021). *Arizona tackles power cutoffs; food safety an important issue. Food Safety News.*	X					X				X			
Berardy, A., & Chester, M. (2017). *Environmental Research Letters, 12,* 1-13.							X						
Berkowitz, S. A., et al. (2019). *State-Level and County-Level estimates of health care costs associated with food insecurity.*									X	X			
Brennan, D. et al. (2019). *A comprehensive food assessment for Maricopa county* .			X									X	
Carney, M. A., & Krause, K. C. (2019). *Journal of Agriculture, Food Systems, and Community Development* ,						X							
Chenarides, L., Grebitus, C., Lusk, J., & Printezis, I. (2021). *Agribusiness, 37* , 142– 159.							X						
De Ridder, D. et al. (2017). *Healthy diet. Psychology & Health, 32(8), 907–941.*			X			X							
DeKoker, T., Mars, M.M., Torres, R.M., & Quist, T. (2018). *Food, Culture & Society, 21* (3), 331-349.	X	X	X	X					X			X	
Duval, D., et al. (2018). *Journal of Agriculture, Food Systems, and Community Development , 8* (C), 53–72.							X						
Eaton, M. et al. (2020). *Nutrition and mental Health—How the food we eat can affect our mood. Frontiers for Young Minds, 8.*				X									
Farm to School Census. (2019). *Arizona / USDA-FNS Farm to School Census.*						X				X	X		
Ferguson, B., & Thompson, C. (2020). *Why buy local? Journal of Applied Philosophy, 38(1), 104–120.*						X							
Forrest, N., & Wiek, A. (2021). Journal of Agriculture, Food Systems, and Community Development, 10(2), 507–528.													
Gibson, TJ. (2017). Nourishing Arizona week brings focus to food deserts. The Republic | Azcentral.Com.												X	
Good Food Finder. (n.d.). *Why local food?*													
Hongu, N., Turner, R., Gallaway, P., Suzuki, A., Gonsalves, K., & Martinez, C. (2015). *Local foods in Arizona* .				X									
Jenkins, A. (2017, June 7). *Farm-to-School: Why we need it and how to get it.*			X									X	
MacMillan Uribe et al. (2012). *An exploratory study of food and sustainability behaviours. Appetite , 59* (2), 431–436.			X										
Mars, M., & Schau, J. (2017). *The Agriculture, Food, & Human Values Society (AFHVS), 34* (2): 407-422.	X												
Malley, C. S., et al (2021). *Environmental Research Communications, 3(7), 075001.*													
Mpanga, I. K.et al. (2021). *Current Research in Environmental Sustainability, 3.*									X			X	X
Murphree, J. (2018, 10 October). *Fighting hunger in Arizona with agriculture's help* .		X						X					
Nabhan, G. P. (2018). *Food from the Radical Center. Island Press/Center for Resource Economics.*				X								X	
Perera, T., et al. (2015a). *Improving nutrition education in U.S. Journal of Education and Practice, 6(30), 41-50.*				X									
Perera, T., et al. (2015b). *Journal of Health Education Research & Development, 3(2), 1-8.*				X									X
Printezis, I., & Grebitus, C. (2020). *Frontiers in Sustainable Food Systems, 4* .		X										X	
Slow Food Southern Arizona. (n.d.). *Home* .												X	
Stanley, B. W. (2017). *Transparent Urban Development: Building Sustainability Amid Speculation in Phoenix.*		X										X	
The University of Arizona Health Sciences. (2021, March 30).		X	X										
Wahl et al. (2017). Healthy food choices are happy food choices. *Scientific Reports, 7(1).*					X			X					
Warren, J. (2020, December 23). *Farmland disappearing in Arizona* [ABC15 Arizona] [Video].			X								X		
Wharton, C., et al. (2021). *Waste watchers: A food waste reduction intervention among households in Arizona.*								X					X
Xavier, R., Bruening, M., & Adams, M. (2019). *Journal of the Academy of Nutrition and Dietetics, 119(10), A144.*				X	X	X							

food accessibility in AZ.

In the past, a lot of research has been done on the level of disconnect between food consumed in Arizona and the people. One factor leading to food disconnection in Arizona is longer geographical distance between the food producers and consumers. Gibson (2017) asserted that one reason for food inaccessibility in Arizona is inadequate grocery stores around most consumers' residential places. The statement implies that the consumers are unable to reach the food producers due to longer distance. Additionally, there is reduced means of transport in some areas to connect the producers and consumers (Gibson, 2017). The lack of transport contributes to consumers' food inaccessibility. As a result, the consumers are forced to eat food that is easily available. The decision to eat the any food that is available, without considering its nutritional value, leads to diet-related diseases (America's Health Rankings, 2021). In other words, more people are unable to access healthy food, and this causes diet related complications.

The aspect of food desert continues to affect the people of Arizona. According to Gibson (2017) Maricopa county, which is the largest county in Arizona, have 55 food deserts and 15.8% of people in Arizona are considered to be food insecure. This highlight of food deserts in Maricopa means that the people of these locations are left with limited food choices and may be tempted to consume unhealthy diets. Beecher (2021) observed that 65% of people in Arizona are overweight and one in six Americans is likely to suffer a foodborne illness thereby increasing risks of chronic diseases. In general, lack of healthy and reliable food remains a challenge in Arizona leading to a higher disconnection with their food.

Low level of income is another mains factor that lead to an increased food disconnection in Arizona. Also, income influences a person's food choice (Live Stories, 2018; America's Health Rankings, 2021). According to America's Health Rankings (2021), many low-income earners families are also struggling to pay medicals costs as well as acquire affordable housing. These struggles make the families to try to balance between the costs of food and other costs. These families result in consumption of foods that are not costly as they are also sensitive on how to meet the other basic financial needs (America's Health Rankings, 2021). In addition, the families whose income is extremely low sometimes cannot manage to raise enough resources to purchase food. The extreme lack of resources leads to illnesses such as asthma, anxiety, and depression (America's Health Rankings, 2021). Figure 2 illustrates the trend of food insecurity of Arizona caused by low income. Overall, low-income distribution among the people in Arizona is one of the main factors causing food disconnection.

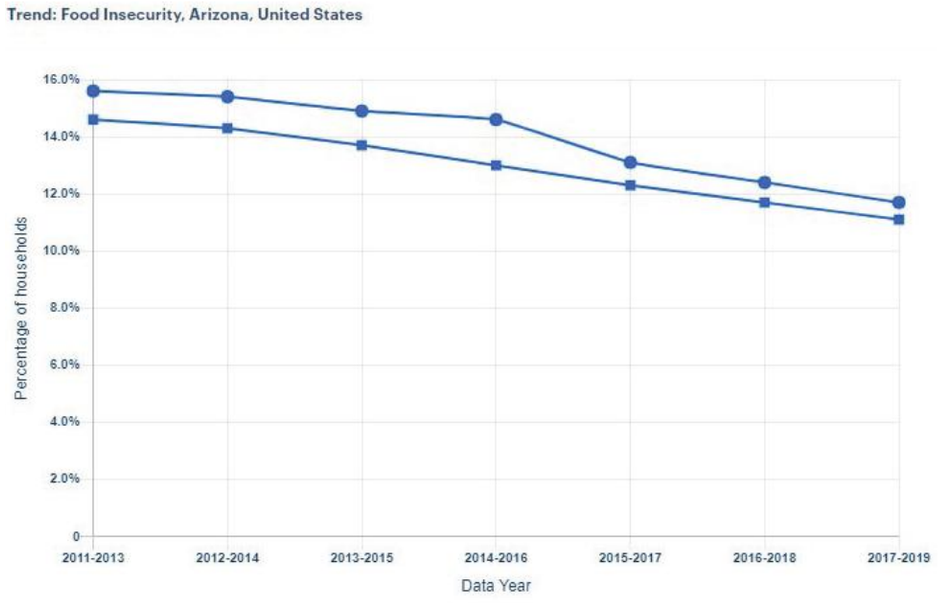


Figure 2. U.S. Department of Agriculture, Household Food Security in the United State Report

Furthermore, schools in Arizona experience challenges in supporting food programs, and one of the common issues is lack of the access to nutritious food in Arizona's public schools due to supply chain challenges. According to Duval et al. (2018), most of the schools in Arizona struggle to provide lunch and breakfast menus for the students. In some cases, as Xavier et al. (2019) note, delays in food deliveries affect food programs in public schools. For instance, some foods take a week or two to deliver, and supply chain issues cause delays for several weeks. Worse still, some manufacturers have reduced the bare minimums following labor and supply chain problems (Duval et al., 2018). Similarly, sustainable agriculture is a significant issue affecting the provision of healthy foods in public schools. The region experiences water supply issues, thus it is challenging for farmers to operate using the finite resource. In particular, the southwest Arizona is the most affected area, while the northwest and the eastern parts of the coastal region record fair rainfall annually. Therefore, agriculture in Arizona depends on crop irrigation as a sustainable alternative to farming in the hot climate.

food education & people's awarness.

Americans have poor eating habits where their diets include little vegetables and fruit, which brews health issues. Overreliance on processed food and fatty foods is also a factor widening the level of food disconnect in Arizona. According to Wahl et al. (2017), many people have a notion that processed food or high caloric food taste better and makes an individual happy, thereby reducing negative feelings. However, unrestrained consumption of food with higher calories may lead to obesity (Wahl et al., 2017). The study affirmed the need of monitoring the kinds of food that people consume as they may have a negative effect on their health. Forrest and Wiek (2021) suggested growing of sustainable grain economy will aid in production of healthy alternative food network. The suggestion can reduce overreliance on processed foods or foods with higher levels of fat. In short, lower concern on locally produced foods have caused food disconnect to increase.

Lack of consumer awareness has long been plaguing local agriculture enterprise as well. Governmental organizations, academia, nonprofits, and farmers themselves eagerly develop solutions for Arizonans not to be dependent on food banks. Programs such as USDA Food and Nutrition Service Department of Defense Fresh Produce Program could be found in all fifteen counties of the state of Arizona (Duval et al., 2019). The problem of lack of communication and exchange between local farmers is slowly eradicated by annually held Food Summits and regional Food Access Workshops (AZDA, n.d.). Participation in such summits allows local food producers to exchange their experience.

farm-to-school program.

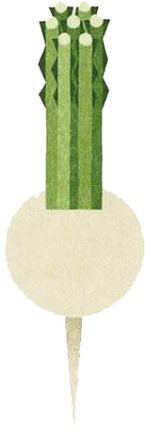
Jenkins (2017) observes that to deal with this dietary concern, the farm-to-school program is used to change the public-school feeding culture in states like Arizona. Notably, Michele Obama established new standards for school feeding programs targeting 86% of Americans in public schools (Jenkins, 2017). In her bid, the farm-to-school program helped to empower students to consume healthy foods. More so, she aimed to increase student participation in food production by teaching them to practice farming. Eventually, according to Michele Obama's plan, the food options in schools, cafeterias, and homes would be influenced by the increased advocacy for nutritious foods (Jenkins, 2017).

In the United States, farm-to-school programs is useful because they improve communal connection to locally produced healthy foods. Thus, with this approach, learners have an opportunity to access information about local foods and have a chance to work in school gardens and participate in cooking shows (Slow Food USA, 2017). Research shows that amongst African American children, one in every five is at risk of hunger (Farm to School Census, 2019). Hence, promoting such programs is a win for kids, farmers, and communities. Particularly in Arizona, the concept of food to school keeps growing, as observed in the last ten years. According to Farm-to-School Census (2019), the total farm-to-school participation stands at 52.3%. Thus, following this development, 573,065 children in 885 schools within the country are engaged in agricultural education in classrooms, cafeterias, and school gardens (Farm to School Census, 2019). Therefore, the focus on nutrition education in Arizona will improve community commitment to the production of healthy foods.

The establishment of the farm-to-school program in Arizona also encourages policy development to promote partnerships between local food suppliers and farmers to increase the supply of nutritious foods in public schools (Good Food Finder, 2016). Similarly, according to Good Food Finder (2016), this program involves the Nutrition Services Division (HNS) and the Arizona Department of Education to promote nutrition education, advocate food safety, teach the fundamentals of school gardening, and organize farm tours for children in public schools.

Notably, the number of school-going children benefiting from lunch and breakfast programs in Arizona keeps increasing. For instance, in 2015, 51% of the total students in public schools qualified for free meals in Arizona (Farm to School Census, 2019). Thus, this issue threatened the food insecurity in the state because some school districts cannot keep up with the dietary demands of learning institutions. Perera et al. (2015b) note that while most school menus satisfy federal requirements, some schools fail to meet the nutrition guidelines. Nevertheless, the farm-to-school program in Arizona has been at the forefront in conducting research together with other stakeholders like local farmers.

A child gains their nutrition habits in their family. Consequently, it is highly important for parents to put the healthy nutrition at home. Healthy nutrition at home contributes to the improvement of the eating behavior of students at school (Diallo et al., 2014). There are several important practices, which can be adopted by parents. First, parents should know that implementation of healthy nutrition should start from the beginning. Children should start eating healthy products, such as vegetables and fish, from the early age. Next, it is important to learn tastes of children and select from the variety of healthy products what they like. Also, parents should try to make some food attractive for children to encourage them eating. Parents can also create challenges and provide praises for eating healthy food. It is also possible to involve children in the process of products purchasing and food preparation. In addition, children should also have the access to the healthy products. Moreover, parents should not forget to actually educate their children about nutrition with the explanation of the funny and understandable way of the main profits of the healthy food. Finally, parents and other family members should be an example for children and adopt healthy eating behavior ("Eating Practices at Home: Parents' Perception," 2019). It is also possible for family members to eat together avoiding fast snacks and technologies, such as smart phones, computers, or TV ("Eating Practices at Home: Parents' Perception," 2019). Together, such activities will bring the culture of healthy eating into the family and improve the nutrition of all family members including children.



Nutrition education should be provided to all families. It is highly important to educate children at schools about healthy eating behavior. The involvement of parents in the education process will improve the educational outcomes. Unfortunately, parents do not receive much information about children nutrition. Usually, it is not the topic discussed with pediatrician unless some problems appear. Due to the lack of knowledge and improper nutrition in their own childhood and adulthood, parents do not pay much attention to the eating behavior of their children (Kim et al., 2019). As a result, such consequences as obesity, eating disorders, and allergies affect the health and quality of children's life ("Why Parents Need Nutrition Education," 2020).

Consequently, it is important to involve parents in the food education to improve their knowledge, skills, and attitudes toward the healthy eating behavior (Brill et al., 2014). In this case, teachers and parents will combine their efforts focused on improving the nutrition of children, which will contribute to their health and development (McManus et al., 2021). Therefore, the involvement of parents in the nutrition education of children is important due to two main reasons: first, most of US parents usually do not have the knowledge about healthy nourishing of their children and require such education and second, the combined efforts of school workers and family will bring more success in adoption of healthy behavior by children.

barriers of healthy eating practice.

All parents wishes the best to their children; however, there are several barriers which prevent them from adopting healthy eating practices. First and foremost, it is the lack of knowledge. Parents usually demonstrate the lack of nutrition literacy and, consequently, support the inappropriate eating behavior of their children (McManus et al., 2021). Another barrier from adoption of healthy eating is the availability and accessibility of unhealthy food outside of the home. Children easily have the access to snacks and fast food and parents allow them to buy it or even purchase such food by themselves since children like it ("Eating Practices at Home: Parents' Perception," 2019). Other barriers are related to the lack of time and finances for healthy food. Parents usually do not have much time for cooking at home, and at the same time, low-income families not always can afford healthy food such as fresh fruits and vegetables, nuts, fish, etc (Contento & Koch, 2020). Another important barrier that prevents adopting the healthy eating practices for childrens includes misconceptions and misbelieves about healthy eating practices (Kim et al., 2019). In particular, only 15% of caregivers are ensure that their children are overweight, while from the statistics, 30% of them have the excessive weight. Evidently, the significant proportion of parents do not have the appropriate perception of healthy and unhealthy weight and, consequently, do not perform actions to improve the situation. Nutrition education at schools can contribute to changing such a situation.

involvement of parents in the nutrition education.

The level of involvement of parents in nutrition education at schools remain low as many teachers do not apply recommended strategies due to the lack of time, school staff, or parental cooperation. Steel, there are recommendations which can be applied by school professionals for improving the participation of caregivers in the nutritional education. In particular, it is recommended to include cooperation with parents in assignments for the homework. Next, it is necessary to invent parents to participate in school classes about nutrition education and in special events related to eating behavior and ask them to conduct presentations on healthy eating. It is important to discuss with caregivers the nutrition of their children and insist on giving children the healthy snacks at school. Finally, schools alongside with community healthcare centers can perform weight and metabolic diseases screening for children and parents (Nation Center for Education Statistics, n.d.).

It is necessary for school workers to initiate the cooperation between school and parents and to demonstrate parents their importance for the process of their children education. Parents should be encouraged to come to school with questions or ideas for health and wellness programs. It is also possible to conduct the survey among parents and detect the main barriers and issues of the interest.

After that, school can perform the educational activities for parents and children focused on covering the main gaps in knowledge and topics of interests. It is also possible to initiate activities beyond schools, such as visiting local farms with families (Brill et al., 2014). From research and surveys, parents indicate that they lack the community services focused on improving the nutrition. Consequently, schools can initiate such educational programs and creation of community wellness centers with the inclusion of the local administration (McManus et al., 2021). Evidently, there are plenty of actions school can perform to include parents in the education about food nutrition of children.

Arizona has always been a historically rich agricultural land, starting with indigenous nations and proceeding through the periods of pilgrimage into the modern era. Because of our mild winters, Arizona has two full growing seasons, warm and cold. While some vegetables can withstand cool and even freezing weather, others need much warmer conditions to germinate and produce food (See infographic design of *Appendix A*). However rich in history, local food production of Arizona struggles to maintain a stable income. An essential problem that local producers face is due to the disconnect of people in AZ from their food. Strong dependence on traditional food supply chains as observed by Chenarides et al. (2021) is severely connected to fragile participation of population in all the processes regarding agriculture. While this research concerns mostly urban agriculture, its sharp decline in the city Phoenix compared to Detroit, MI confirmed through online surveys conducted in 2017 and 2020 should really be considered a part of a tendency. The research conducted by Printezis and Grebutis (2020) specifically pinpoints millennials as the section of population most susceptible to this tendency. Duval et al. (2019) mention that local foods are mostly purchased through intermediaries. Local food logic could be described as a hybrid, encompassing a large array of stakeholders such as farmers' markets and local food print media among others (Mars & Schau, 2017). The farming part in it experiences severe shrinkage due to the lack of interest among the population in procuring local produce

directly from Arizonan manufacturers.

The problems local producers face could also be exemplified by the case study of Maricopa County, one of the fifteen in the state of Arizona. Maricopa County is the national champion in the value of forage crops, hay and value of milk, which also produces melons, potato and vegetables (Brennan et al., 2019). However, approximately a half of all the farmland in the county was converted to urban development. Urban development is one of the major factors which greatly threaten the statewide food security due to actual farmland disappearance (Warren, 2020). At the same time, Arizona ranks tenth in organic sales when it comes to the entirety of the United States (AZDA, 2018). David Vose, the owner of Blue Sky Organic Farming attributes such mismatch to the absence of long-term planning. In an interview to an Arizona TV station, he notes that farmers unite with Coalition for Farmland Preservation and Arizona Land and Water Trust (ALWT) nonprofits to shed light on the problem to local authorities, proposing possible changes in zoning laws (Warren, 2020).

It is important to note that each new residential development in parts of Arizona must have proven water supply (Ten Across, n.d.). As a result, water supply shrinking in state can potentially threaten the Arizona's food production.

Problems of both water supply shrinkage and urban development are greatly amplified by another issue, namely the absence of infrastructure regarding to the distribution and processing of foods. Therefore, in the Maricopa County alone, 95% of all the sales come from only 186 farms, which constitute just 10% of the existing ones (Brennan et al., 2019). The scale of the problem is more amplified by the fact that Arizona is a nationally important food provider. For example, 22% of live animal and fish imports to Los Angeles come from Arizona (Berardy & Chester, 2017). In addition, Arizona holds the third place in federal lemon production and the first place in the winter season production of leafy greens such as lettuce (AZDA, 2018). Nonetheless, it has been hard for the local producers in Arizona to reach clientele both outside and inside the state.

consequences of food disconnect.

A huge disconnect between the producer and consumer has numerous impacts. First, there is a higher chance of environmental pollution. According to Ferguson and Thompson (2020), long distances between the producer and consumers lead to environmental pollution since the vehicles used in transportation emit carbon in the atmosphere. The carbon emission contributes to climate change because the carbon combines with other greenhouses gases causing higher atmospheric temperatures (Malley et al., 2021; Ferguson & Thompson, 2020). Use of local food can assist in mitigating the challenge of carbon emission in the atmosphere (Good food finder, 2021; Ferguson & Thompson, 2020). Locally produced food reduces transportation distances thereby reducing carbon emission. Moreover, Agricultural soil facilitates carbon sequestration leading to reduced carbon footprint (Good food finder, 2021). In short, long travels between the producer and consumer involves emission of carbon in the atmosphere, which causes air pollution.

Another impact of a huge disconnect between the producers and consumers is increased food waste. According to Wharton et al. (2021), food waste is a challenging issue among the consumers. Gibson (2017) asserts that consumers in Arizona faces the challenge of not having a grocery store near their places of residence. The problem of lack of a nearby grocery store indicates that people may be tempted to buy perishable food products in bulk to be consumed for more days. However, with poor refrigeration the food may get spoilt thereby turning to be a waste. The wasted food may be released in the environment which adds to the environmental pollutants. Wharton et al. (2021) highlighted that food waste may contain chemical elements such as methane. These chemical elements have an effect of increasing the greenhouses gases thus initiating climate change. Furthermore, failure to realize that food is spoilt may make an individual to consume it, impacting negatively to their health. In addition, food waste results into environmental pollution.

Finally, increased food disconnect affects the health of a person. In accordance with Gibson (2017); Berkowitz et al. (2019) and De Ridder et al. (2017), improper diet can cause several chronic diseases like high blood pressure and diabetes. Gibson (2017) noted that some people depend on foods that cause inflammation which is the underlying cause of the chronic diseases. Indeed, poor choice of food continues to affect people's normal health life. America's Health Rankings (2021) affirmed that food insecurity affects the mental wellbeing of a person and places physical stress on the body. The statement explains why more people are suffering depression and anxiety. The threats occasioned by lack of funds to purchase food makes individuals to suffer stress. Poor management of the stress makes the stress levels to go beyond normal levels. The progression of stress above the normal standards leads to depression. Eaton et al. (2020) affirmed that food is key for human being survival and may help determine the mood or emotions of an individual. Lack of food resources may stress someone triggering depression as the final state of stress advancement. In conclusion, food choices or lack of food continues to be a major factor in determining the health status of a person.

Healthy diet can be exercised through support of local farms in Arizona. According to Stanley (2017), it is essential to draft and implement right policies for food sustainability. Formulation of appropriate polices that support local farming is key in improving food status in Arizona. Stronger financial and some technical support will boost the accessibility of healthy food thus reducing the problem of food deserts. Good food finder (2021) insisted that people should purchase healthy produce from local farms. Direct produce from the farm has high nutrition value and tastes better since no processing is required unlike for foods that passes through longer distances before reaching the consumers and have to be processed (Good food finder, 2021; Gibson, 2017). In sum, it is crucial to embrace local farms since people get food with higher nutrition value.

Otherwise, a visit to a community garden where there is Farm-to-table restaurant is also a step towards achieving a healthy diet and supporting local farms. Gibson (2017) encouraged that visiting a community garden will not only guarantee healthy diet, but also an individual is able to acquire farming insights. The knowledge received can be utilized in practice small farming with an aim of improving food sustainability. Mpanga et al. (2021) noted that the progressive practicing of small-scale faming for food sustainability. Visiting community gardens also aid in mitigating environmental pollution.

Transportation of food products is associated with wrapping a product with specific material. Some of these materials used impact negatively to the environment. Many materials used to wrap food product take more time to decay which leads to environment pollution. Therefore, visiting the community garden with a restaurant makes a person to consume his or her food from the restaurant, thereby solving the problem of environmental pollution occasioned by materials used to wrap food. In general, visiting a community garden which has some Farm-to-table restaurants and purchasing of food that provide a healthy diet and it also raises the economic status of the restaurant.

Another way of achieving a healthy diet is through bulk buying from local farmers and uniting in restoring the productivity of idle land. Gibson (2017) affirmed that a group of people from a food desert area can board a bus to visit a farm, where they can buy foods that can last longer such as whole grains, beans and others. The direction is beneficial to both the consumers as well as the farmers. The consumers can access food with high nutritious value while the producers gain economically. Nabhan (2018) noted the importance of people from different background coming together to utilize land and save heal communities. Local people in Arizona can utilize idle land through growing of different crops. Integrating numerous methods of farming like irrigation will aid when restoring land for local farming. The farm produce obtained through utilization of idle land is healthier compared to food produced elsewhere and takes longer distances before reaching the consumer. In general, people in food desert regions can reduce food inaccessibility by buying local products from the local producers as well as utilizing idle land for farming.

Despite the challenges of providing healthy foods to Arizona schools, several initiatives have helped to address this problem as well. Thus, the National Farm to School Network is responsible for nutrition advocacy in communities and schools. In particular, this movement shares information on how to source healthy foods as well as information about farming knowledge to school systems. Also, the Farm to Preschool initiative targets children in their early stages of development by providing them with access to farming knowledge (Jenkins, 2017). Food Corps is a countrywide initiative that was established to communicate with children about the importance of nutrition. It also imparts them with hands-on skills such as gardening so that that they have an opportunity to participate in food production in their schools. In addition, the Edible School Yard Project creates a nutrition education curriculum for children in high schools and kindergartens (Jenkins, 2017). The motivation of this curriculum is to change children's perception of organic foods by implementing transformative curriculums.

Ethnography Research.

Besides secondary research, I also used some other methods to help me gather information from and understand different stakeholders of my focused topic. A primary one was ethnography research. *Ethnography* is a qualitative research study looking at the social interaction of targets in a given environment. This method includes direct observation, diary studies, video recordings, photography, and artifact analysis (Rees,2021).

My observation took place in different locations and demographics based. Since ethnographic research is an observation that most participants do not realize they are being observed, their behavior is not impacted in any way, which is always a concern with unnatural settings. This study provided insights into people's shopping behaviors, preferences between industrialized and organic foods, types of grocery stores, and purchase methods (internet versus in-store).

research plan.

Identify research questions

What kind of food do shoppers choose? Industrialized (canned, prepared, etc.) or raw materials (vegetables, fruits, meat, etc.)?

Do shoppers read on the product labeling?

What is the flow at different types of stores?

What are products sold in different stores?

Determine locations & Time

Organic market: Whole Foods Market, Sprouts Farmers Market

Regular chain supermarket: Walmart, Safeway

Time: Weenkend evening; 20-30mins per location

Observe & participate

To research effectively, I participated in the environment I was researching as a shopper. My goal was to observe as objectively as possible. Taking pictures (See *Appendix B*) and writing running impressions helped me record the observation.

Collect archival data

This step was similar to *Secondary Research*. My focused area was the interrelationships between where and when consumers shop (the internet, stores, and preferred retailers) and what they purchase (via the internet and in-store). Due to privacy and confidential reasons, I collected information from papers, websites, and other sources to enhance my understanding of the topic.

Code & analyze data

I coded my data in a way that made the most sense for my observations and finally summarized the information I learned. Some hypotheses were made based on observing and personal experience helped find the cause of shoppers' behaviors.

outcome.

My observation took place in both the organic markets (Sprouts Farmers Market and Whole Food Market) and regular chain supermarkets (Walmart and Safeway). From my observation, A higher flow of customer traffic was detected in the large chain supermarkets such as Walmart and Safeway than most organic markets. Whole Foods Market has the most organic products, and Walmart has the most canned and instant food among all stores I visited. Compared to most shoppers in some regular supermarkets, who moved fast and grabbed products from shelves without hesitation, few shoppers I met in Sprouts Farmers Market read labels on products before putting them into carts. By observing shoppers' shopping carts, I found that shoppers in organic markets preferred raw materials like vegetables and meat. However, more shoppers in regular supermarkets spent more time in front of freezers selecting frozen vegetable mix and burger meat.

I inferred that most shoppers' food choices are based on two factors: social status and products' prices. These two facts are interconnected. From my observation, most shoppers in regular supermarkets were teenagers and students. They purchased more prepared and instant food probably due to limited budget on food, and time and resources to cook (no kitchen in the dorm room). Otherwise, most shoppers in organic markets were shopping for families or older adults. These shoppers probably pay more attention to foods' nutrition value, and have more budget since the product sold in organic markets are always more expensive.

*Whole Foods Market.

Whole Foods Market is an exception that initially opened as a way to bridge the gap between tiny, sometimes dirty, and poorly-run health food stores and mainstream supermarkets (Campbell, 2021). It is a supermarket, but it has that grocery store feeling with organic products. The business model and concept Whole Foods Market persisted in is an excellent example of promoting good, clean and fair food by supporting local producers. By providing sustainable, fairly foods and ethically sourced meat, shoppers here loved not checking the ingredient labels on products and just buying, knowing they would be free of artificial ingredients, preservatives, and flavors. I appreciate that Whole Foods Market always lists out local producers' information next to all local products. This design will helps customers know where the food comes from, and it will help promote and support Arizona local producers at the same time.

online grocery shopping.

Grocery shopping in the 21st century is changing drastically, and one major change is the growing number of online shopping customers, especially after the pandemic. Digital grocery sales in the US are estimated to reach $59.5 billion by 2023 from $23.9 billion in 2018.

Online grocery shopping has the potential to dramatically limit the impact of both the cognitive barriers to healthy food access: consumers can shop online at any time, and online grocery shopping allows low-income food desert dwellers and customers with limited mobility to order groceries online and have them delivered. Also, online grocery shopping offers potential promise to promote healthier food and beverage choices, including fewer impulse purchases (Chintagunta, 2009), and greater access to healthy foods (through the Internet), even when such foods are less available in the physical environment (Martin MA et al., 2013).

However, online grocery shopping can be a double-edged sword. In an eye-tracking study (Chang BP et al., 2015), investigators found that only a small proportion of fixations were focusedx on nutrition information. They also found that even having a restricted diet did not influence how often participants looked at nutrition or ingredients information, suggesting that more steps should be taken in the online grocery shopping environment to encourage consumers to view nutrition-related information. In an innovative study that offered lower-calorie within-category 'swaps' for higher-calorie options, there was some evidence of the lower-calorie 'swaps' improve the healthfulness of purchases (Marteau TM et al., 2015).

Furthermore, consumers may be less likely to use online grocery shopping to make perishable food purchases (e.g. fresh fruits, vegetables, meats) due to concerns about freshness, bruising, and food safety (The Nielson Company, 2015). This could lead to less healthy purchasing habits being cultivated by the online grocery shopping experience, as customers have not only healthy options, but also have several unhealthy processed foods they can easily purchase in the online environment.

Survey.

To better learn about food education in Arizona, my study also references some surveys done by professional experts and organizations, such as the "Farm to School Census" done by USDA (See Appendix C). Overall, surveys revealed Arizona children's current relationship and connection with local foods and farms.

Otherwise, I designed a survey that aimed to understand how we can help families with young children stay healthy and eat healthy meals at home (See Appendix D for my survey result). This online survey included 16 questions for parents (or any food provider for childrens in a family) about their food preparation process and their childrens' eating patterns. This survey provided insights on children's food options at home, how parents are involved in their kids' food education, and parents' knowledge of cooking healthy meals at home. Information I collected from parents and food providers is important for me to know the direction home meals and food education need to take to help children fully use their senses to recognize food qualities and become conscious of their choices.

survey questions.

1. Your relationship to child(ren).

2. Usual meals of child(ren) for dinner.

3. In your family, who decides what food will be provided at meals?

4. How long(mins) are mealtimes?

5. How often does the family eat dinner together?
   ○ Once a day ○ Every other day ○ Once a week
   ○ Once a month ○ Only on special occasions

6. is the TV on during the meal?
   ○ Usually ○ Sometimes ○ Rarely ○ Never

7. Do the children go grocery shopping with you?
   ○ Usually ○ Sometimes ○ Rarely ○ Never

8. When your children ask for food you usually don't buy or cook, where do you think they get their ideas from?

9. When you need to go food shopping, how often do you write down a list?
   ○ Usually ○ Sometimes ○ Rarely ○ Never

10. Are the meals your family eats "Take Out" or cooked outside the home?
    ○ Usually ○ Sometimes ○ Rarely ○ Never

11. Are the meals your family eats home cooked?
    ○ Usually ○ Sometimes ○ Rarely ○ Never

12. How do you serve vegetables?

☐ As a cooked side dish ☐ Cooked with other food (i.e. in soup)

☐ Raw (salads, snacks) ☐ Other _____

13. Do you use recipes when you ook?

○ Usually ○ Sometimes ○ Rarely ○ Never

14. If you use recipes, where do you usually get them from?

☐ I know the recipe in my head ☐ I have the recipe written down on paper

☐ I use a cookbook ☐ I write down recipes from TV ☐ From App

15. Do you know what health problems can happen if someone is overweight?

○ Yes ○ No

16. Do you have any suggestions for parents about how to make their child to eat more vegetables?

Interviews.

The type of interview I conducted in this study is the unstructured interview. This type of interview is that the interviewer asks questions that are not prepared in advance. Instead, questions arise spontaneously in a free-flowing conversation, which means different candidates are asked different questions (Pollock, 2019). During my research, I interviewed two people who are all stakeholders of my study: an elementary school students, and the operator of a local farm.

the student.

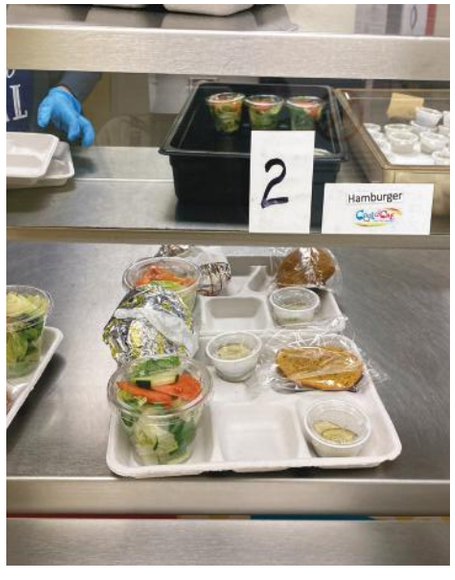
Interviewee: Amy Wu
School: Ryan elementary school
Grade: 5th grade

Amy is a 10-year-old outgoing girl. I was luckily invited to the Veteran's Day lunch activity held by her school and had the chance to visit her school's cafeteria and observe Amy's lunch meal experience. Ryan elementary school has a small cafeteria inside the gymnasium, and students in different grades always have staggered lunchtime due to the limited space. I found the foods provided were simple but nutritionally balanced. For example, students had three drink options from milk and juice, an entree with selected vegetables and fruit, and various options for snacks. From my conversation with Amy, I learned that the PA system announced the lunch menu every morning. Before lunchtime, students would know their lunch options, but the detailed ingredient was told until lunchtime. Otherwise, I noticed that school self-packed foods and no ingredient or origin information showed on packages.

Talking about the food education in Amy's school, Amy told me teachers had mentioned the nutritional value for different vegetables and fruits on some occasions and had made a poster of eating healthy within a food pyramid with students. I had also talked with Amy's mother in this activity. I learned that Chandler Unified School District (CUSD) listed the school lunch menu online for all schools in the area. After checking the website, I found that the food ingredients with calories are listed clearly for each meal. However, through

my conversation with parents, I found that students would never check for this information online. Therefore, I feel the school has the awareness to provide healthy and nutritionally balanced food to students but lacks education on teaching students to recognize the nutritional value of the food they eat by themselves.

During my visit to the Ryan elementary school, I noticed that many farm frames outside the school building were overgrown with grass and weeds, and some tower gardens were used to display students' drawings and posters. Amy told me that her class only used the farm frames once to experiment with how different liquids influence the growth rate of strawberries. The school wastes its resources teaching students where food comes from, how food grows, and sustainable farming. Reusing these farm frames to create a small school farm will boost learning and engagement across the curriculum, and provide innovative ways to teach students about wellbeing and green issues.



Ryan elementary school

the local farmer.

From my secondary research on farm-to-school programs, I realized that this is an excellent example of a program to promote local foods and are used by schools to provide nutrition education, develop school gardens, and promote local food purchasing by school districts. By visiting the Uptown Farmers Market in Phoenix, I had a chance for a short conversation with an operator from TJ farms about the farm-to-school program from a farmer's perspective.

Interviewee: Tonia Munoz
Location: Uptown Farmers market
Farm: TJ Farms

From my conversation with Tonia, I learned that TJ Farms is an organic farm that grows pesticide-free vegetables on close to 3 acres in Waddell, Arizona. They grow various products like spinach, lettuce, Asian greens, root veggies, etc. TJ Farms business is primarily based on attending regular farmers markets and membership of Community Supported Agriculture (CSA). Community Supported Agriculture (CSA) is a production and marketing model whereby consumers buy shares of a farm's harvest in advance. In return for customers' membership fees, they will receive a variety of freshly picked vegetables and fruits from farms (Debbie, 2021).

TJ Farms used to supply vegetables and fruits to the local school district but did not venture into this business too deep due to several reasons. Tonia believes the farm-to-school program positively impacts local food purchases and supports small local farms. However, there are lots of challenges for both farms and schools. Usually, school districts distribute school meals from central facilities, and central facilities prefer receiving prepped foods that have been chopped and cleaned. However, for some smaller farms, they may not be able to get things processed, so they might lose the opportunity to cooperate with the school district. Otherwise, the distribution and procurement are other significant issues since distributors will not pick up products from farms, so school districts have to be creative to access local farmers.

Uptown Farmers Market

Conclusion.

All in all, food disconnection among the people in Arizona is a broader scope that can be explored from different perspectives. The seriousness of that situation contributes to a threat of food security for the whole state, which could already be traced back to persistent problems with land use, irrigation, distribution, and general awareness of the population regarding local food. The larger food desert is the key basis why there is a huge food disconnect between the producers and consumers. Lack of healthy food around an individual's residence forces people to consume the food that is easily available. Similarly, transport challenges, from the producers to consumers, make people consume any kind of food with disregard of the nutrition value of the food. Consequently, poor food choices result in food-related illnesses such as diabetes and obesity. Income distribution continues to be a determining factor in the selection of food that we consume. Often, these low-income families are unable to balance the costs of food with other basic needs costs. Despite poor eating habits, this can be improved by embracing healthy diet techniques like sourcing one's food from local farms, or promote farm-to-table restaurant to the public as well as local food is healthier than processed food and food transported over long distances.

Malnutrition is the significant and underestimated problem. People in society believe that this problem is prevalent in third world countries where people, in particular, children do not obtain the sufficient amount and quality of food. However, malnutrition can occur in developed countries and in high-income families, as this problem is related to the deficiency, excess. or imbalance of energy and nutrients obtained (Contento & Koch, 2020). Consequently, nutrition education for children and families is highly important as it helps to improve the quality of nutrition and develop healthy behavior and lifestyle in children; however, such barriers as the lack of time, finances, and poor knowledge and skills prevent parents from adopting the healthy nutrition style.

Furthermore, in Arizona, food education is necessary and required to change people's, especially childrens' perceptions about nutritious diets and increase the supply of healthy foods in public schools. Breakfast and lunch feeding programs in Arizona's public schools benefit children from poor backgrounds. With the shortage of nutritious foods that caused by production and supply chain issues, the farm-to-school program provides a solution to this problem. Also, the farm-to-school program educates children on producing healthy foods through collaboration with local farmers to increase local supply to public schools. Thus, the farm-to-school initiatives benefit communities, students, and farmers through the increased advocacy for healthy foods. It is necessary to initiate school-based activities and to involve parents in the nutrition education as such activities will help caregivers to overcome barriers for adopting healthy eating practices.

Design.

Food disconnection among the people, especially children in Arizona, has been revealed based on the research phase. Raising awareness of food education for children is a matter of great urgency. The design phase for this capstone project focused on making home-based nutrition education easy for parents to practice by recognizing nutritional ingredients and providing healthy meals.

Design timeline: January – April, 2022

Deliverables: AppetiZ (App design), app promotion video, poster design, App peripheral products (AR food cards, calendar design), exhibition design.

Design medium: Figma, Adobe Creative Suite(Ps, Ai, Id, Ae), Unity 3D, Xcode, digital printing, handcraft.

Appetiz

app design.

medium.

Figma (UI design, prototype)

target audience.

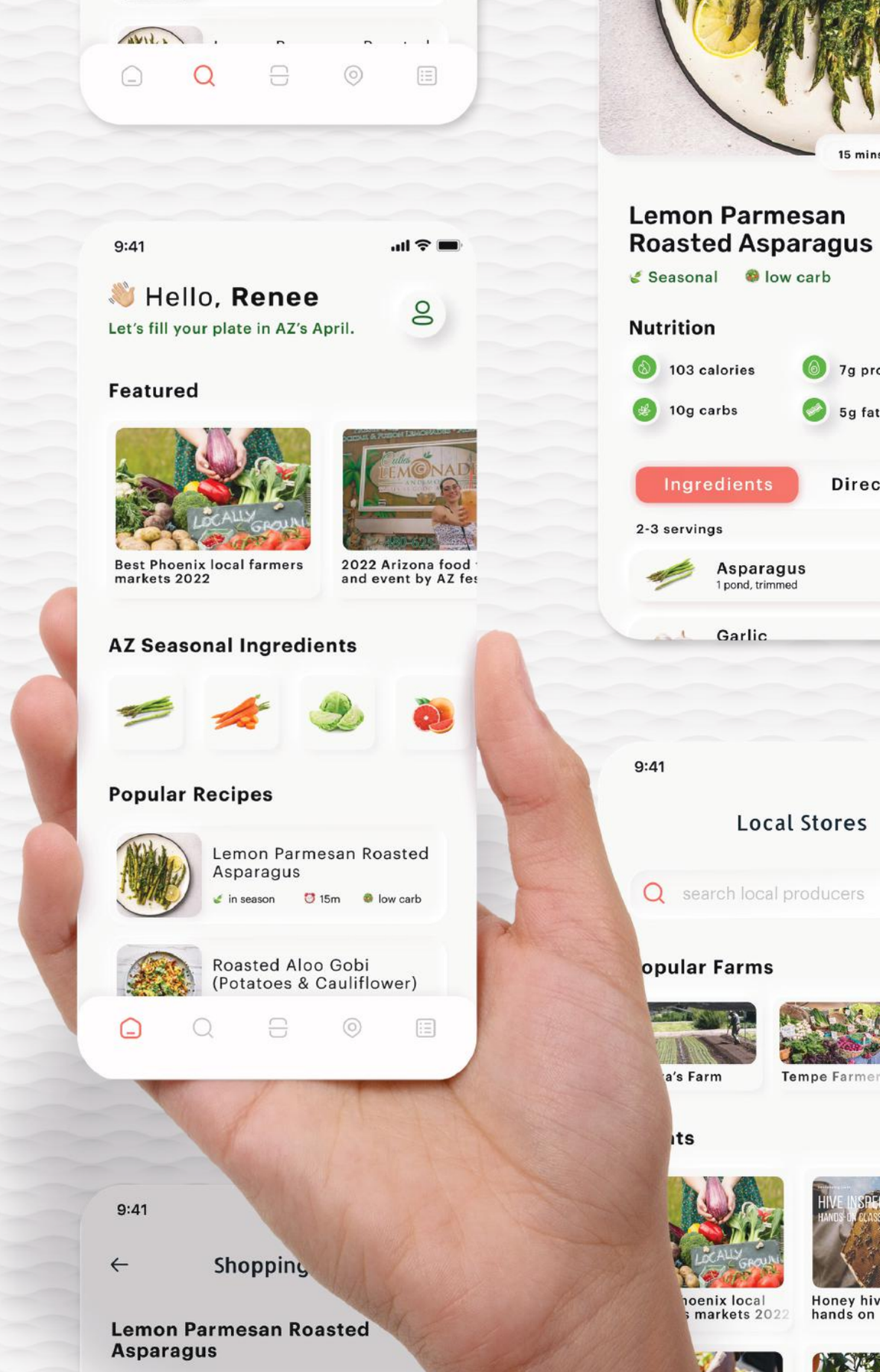
The food provider of a family, especially mothers and older sisters (due to *home-based food education survey* result).

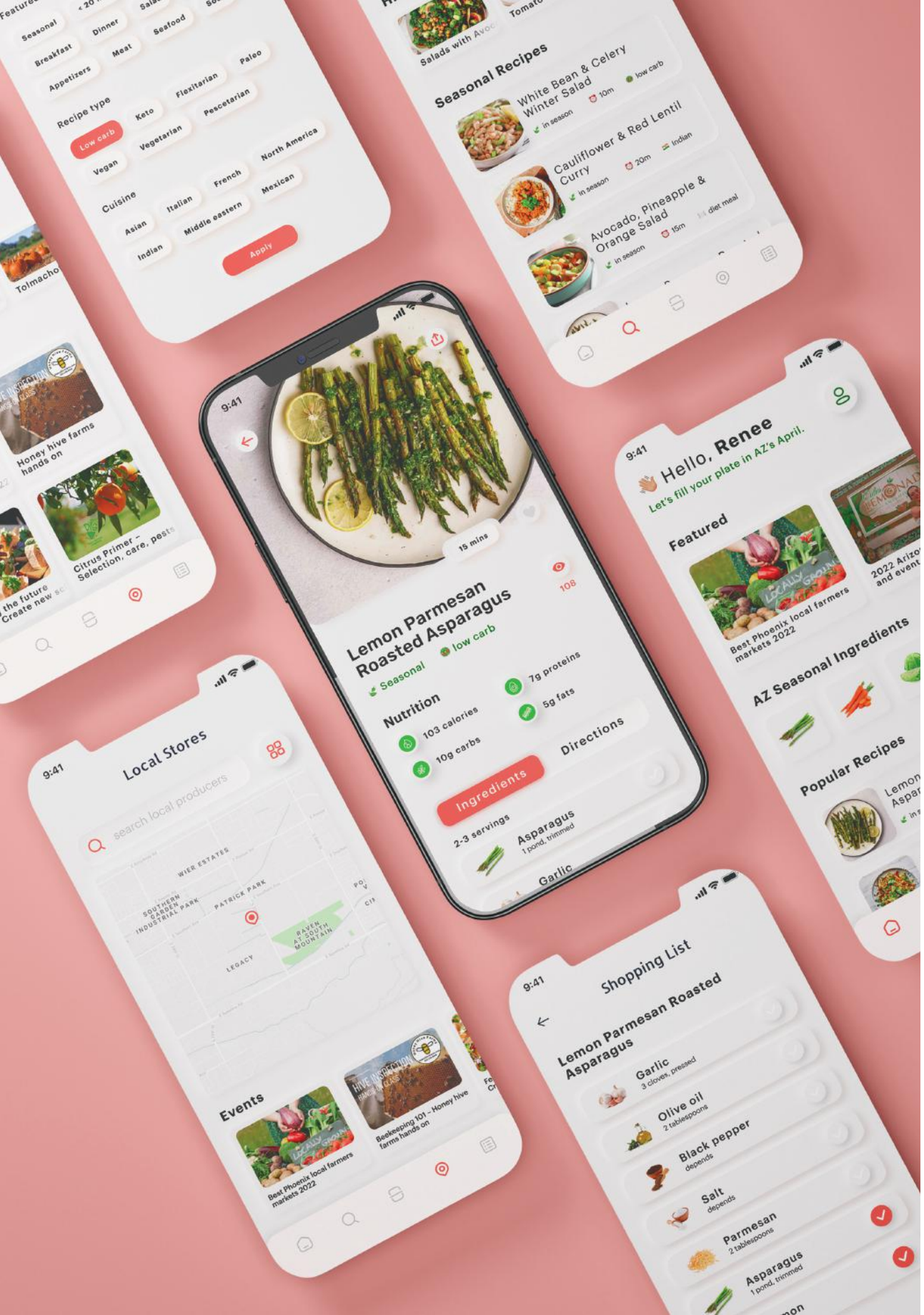
what to eat for a healthy meal in AZ?

What to eat for the next meal is one of the most struggling questions for many people. Making a meal healthy is a much more challenging task for parents. If you are a food provider of your family, you have to think about which ingredients to purchase so they are nutritionally balanced, where to find materials, how to cook efficiently, and most importantly – how to cook to make children enjoy the food.

idea & goals.

This app's functionalities and operation route covers your experience from Arizona's local grocery stores to your dining table. This app intends to help parents recognize ingredients in the store and cook easier, faster, and healthier at home. Unlike most recipe apps, AppetiZ connects Arizonans and their producers with more seasonal recipes. It is a great tool to share authentic AZ local food with your the family.





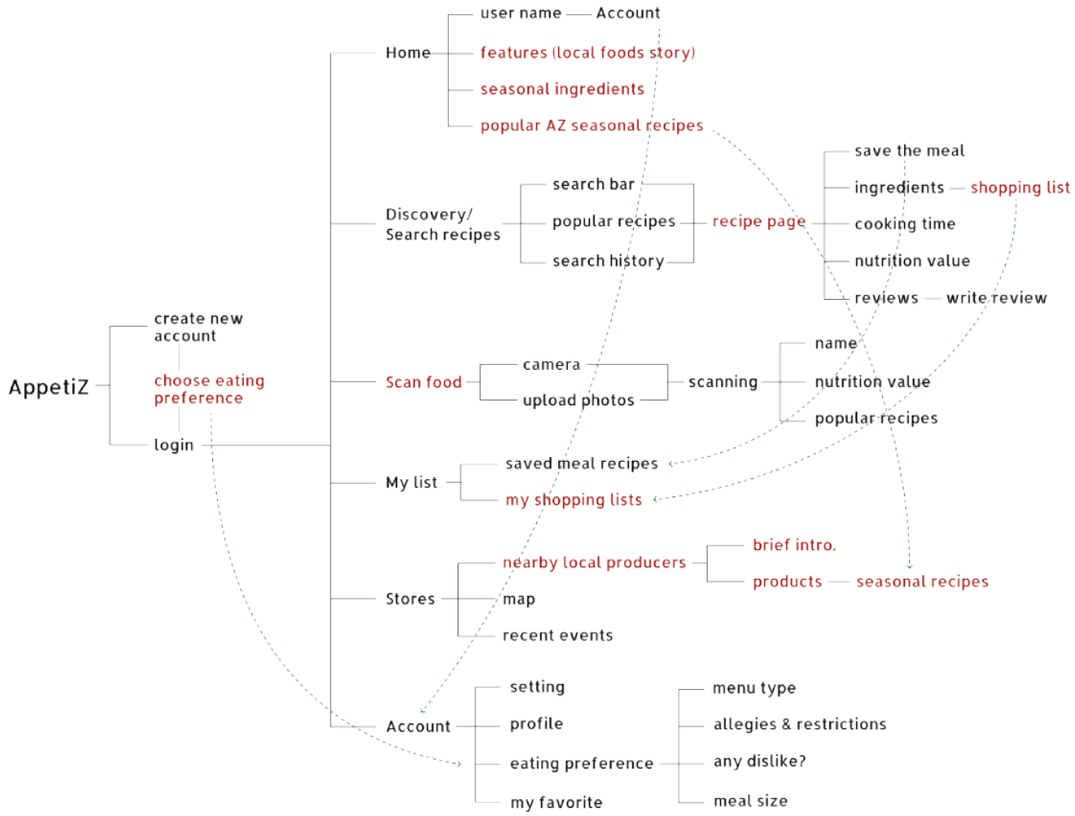
logo.

Appetite + AZ +

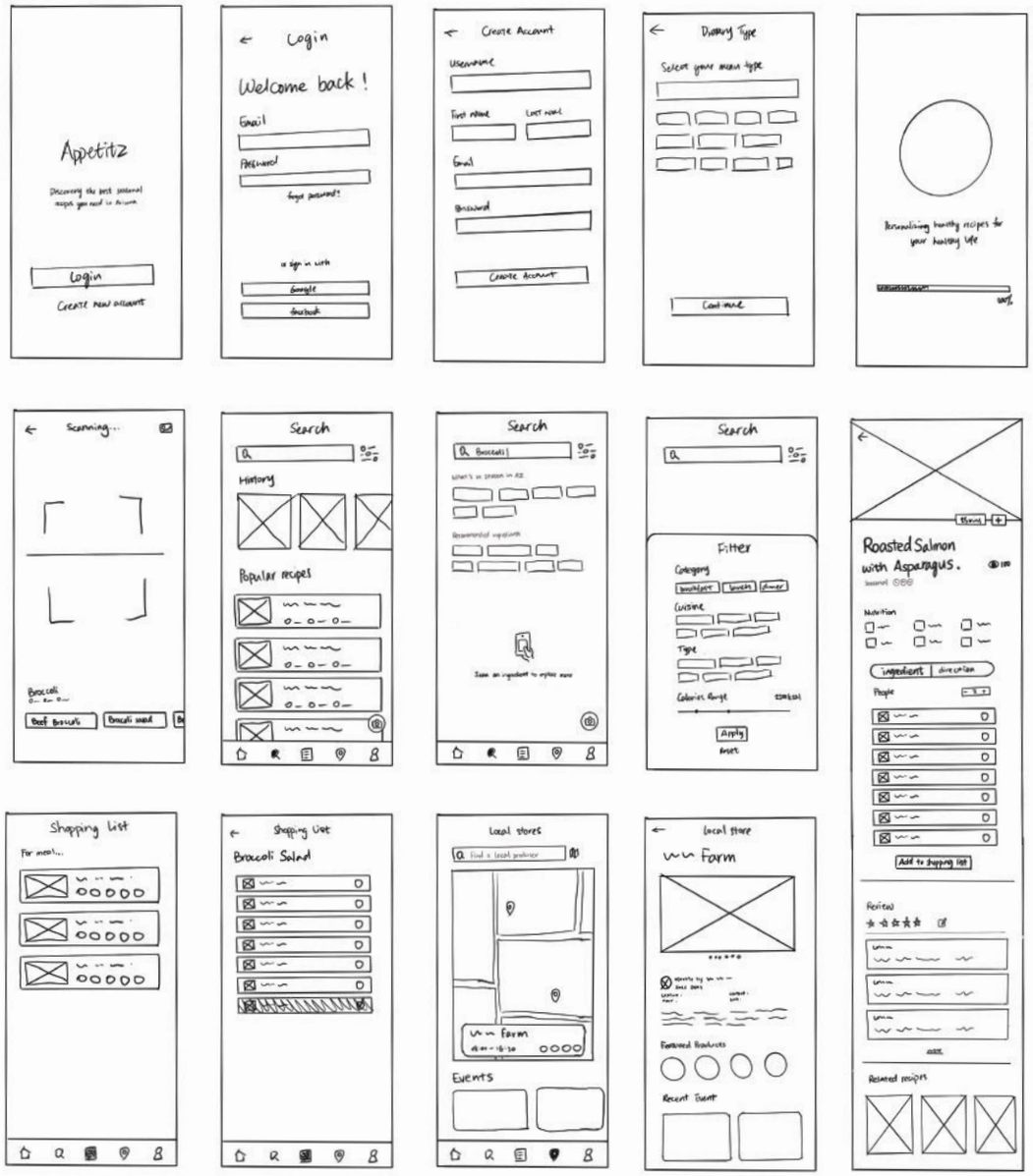
font. *Fertigo Pro Script*

color. #006838 #F07167

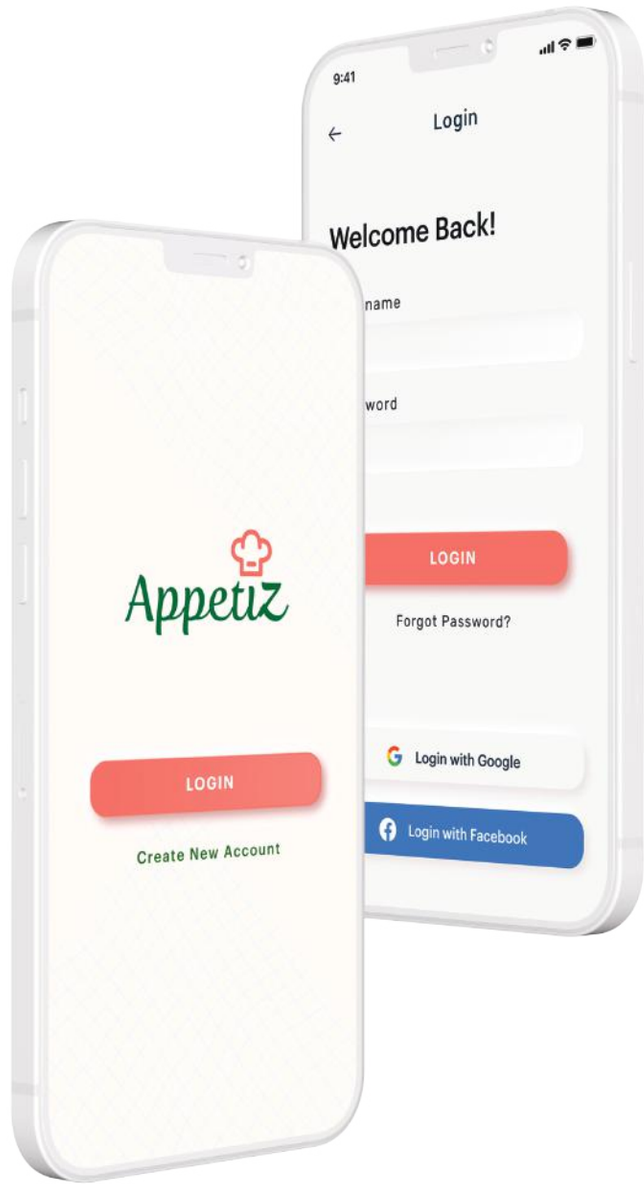
app workflow.



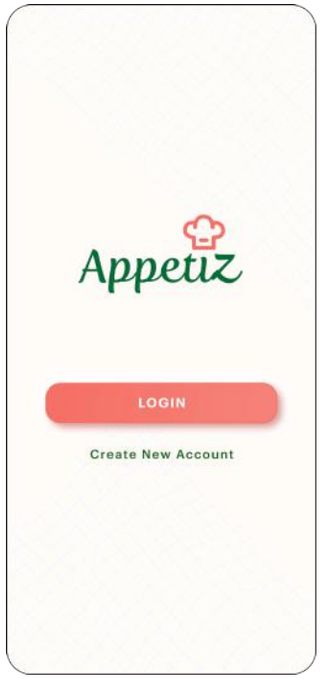
wireframes.

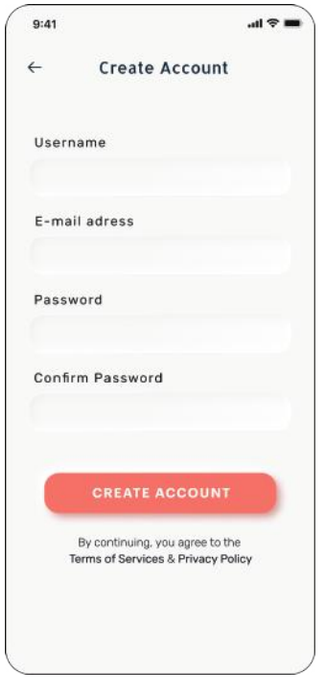

Appetiz
Login
Welcome back !
Email
Password
Forgot password?
Or sign in with
Google
Facebook
Create Account
Username
First name
Last name
Email
Password
Create Account
Dietary Type
Select your meal type
Continue
Personalizing healthy recipes for your healthy life
Scanning...
Broccoli
Beef Broccoli
Broccoli salad
Search
History
Popular recipes
Search
Broccoli
Search
Filter
Category
breakfast
lunch
dinner
Cuisine
Type
Calories Range
Apply
Reset
Roasted Salmon with Asparagus.
Nutrition
ingredient
direction
People
Add to shopping list
Review
Related recipes
Shopping List
For meal...
Shopping List
Broccoli Salad
Local stores
Find a local grocer
Farm
Events
Local store
Farm
Featured Products
Recent Event

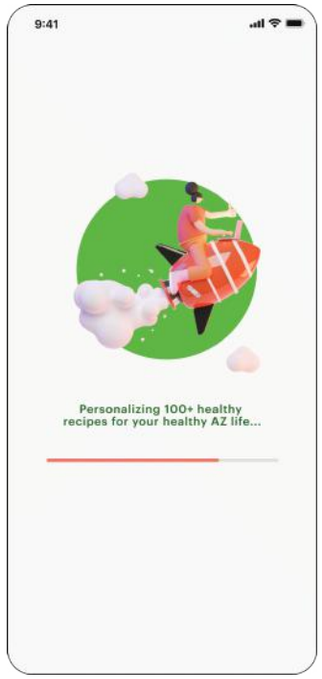

Hello
Euca
Features
Seasonal ingredients
Seasonal recipes
Account
Euca You
Saved menu
Logout
Account
Eating Preferences
Menu Type
classic
Allergies & restrictions
Any dislike ?
Meal size
2 servings

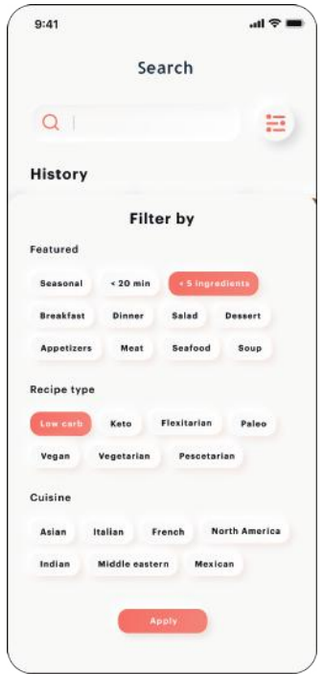

9:41
Login
Welcome Back!
name
word
LOGIN
Forgot Password?
Appetiz
LOGIN
Create New Account
Login with Google
Login with Facebook

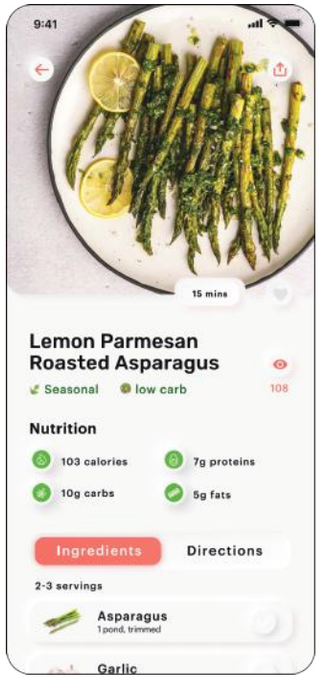
selected app UI designs.

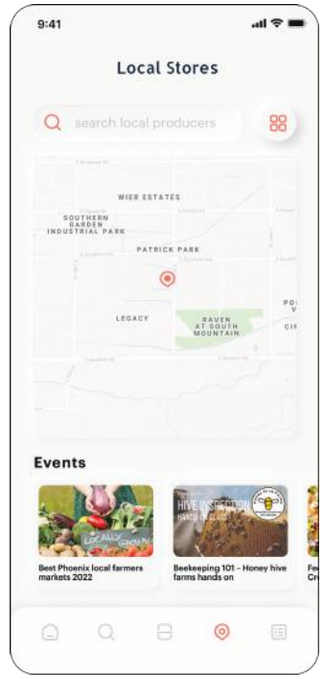


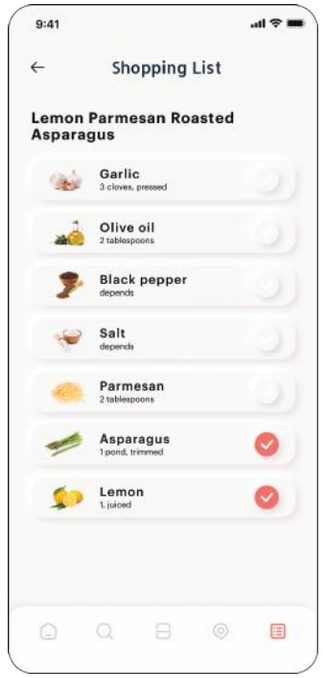


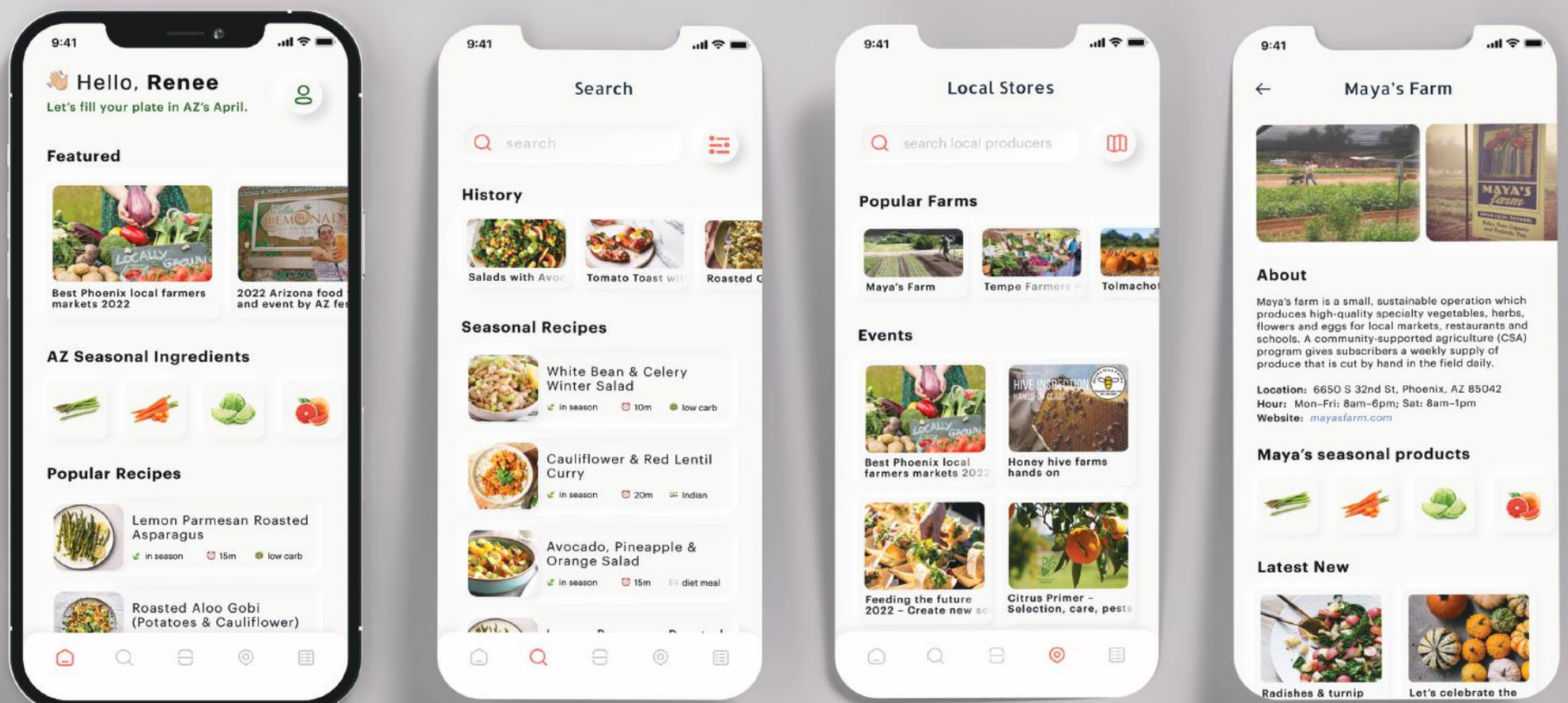











9:41
Hello, Renee
Let's fill your plate in AZ's April.
Featured
Best Phoenix local farmers markets 2022
AZ Seasonal Ingredients
Popular Recipes
Lemon Parmesan Roasted Asparagus
in season
15m
low carb
Roasted Aloo Gobi (Potatoes & Cauliflower)
9:41
Search
search
History
Salads with Avoc
Tomato Toast wit
Roasted C
Seasonal Recipes
White Bean & Celery Winter Salad
in season
10m
low carb
Cauliflower & Red Lentil Curry
in season
20m
Indian
Avocado, Pineapple & Orange Salad
in season
15m
diet meal
9:41
Local Stores
search local producers
Popular Farms
Maya's Farm
Tempe Farmers
Tolmachot
Events
Best Phoenix local farmers markets 2022
Honey hive farms hands on
Feeding the future 2022 – Create new sc
Citrus Primer – Selection, care, pests
9:41
Maya's Farm
About
Maya's farm is a small, sustainable operation which produces high-quality specialty vegetables, herbs, flowers and eggs for local markets, restaurants and schools. A community-supported agriculture (CSA) program gives subscribers a weekly supply of produce that is cut by hand in the field daily.
Location: 6650 S 32nd St, Phoenix, AZ 85042
Hour: Mon–Fri: 8am–6pm; Sat: 8am–1pm
Website: mayasfarm.com
Maya's seasonal products
Latest New
Radishes & turnip
Let's celebrate the

promotion video.

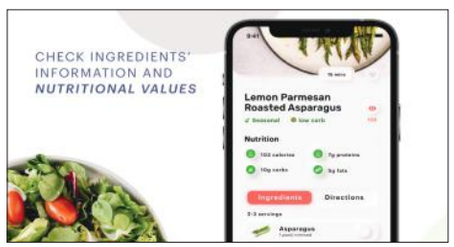
medium.

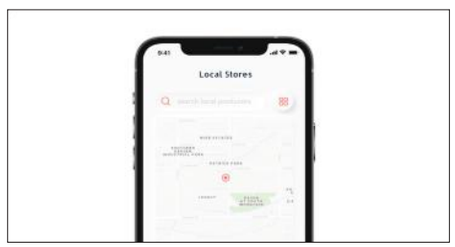
Figma (prototype), Adobe Ae (video editing)

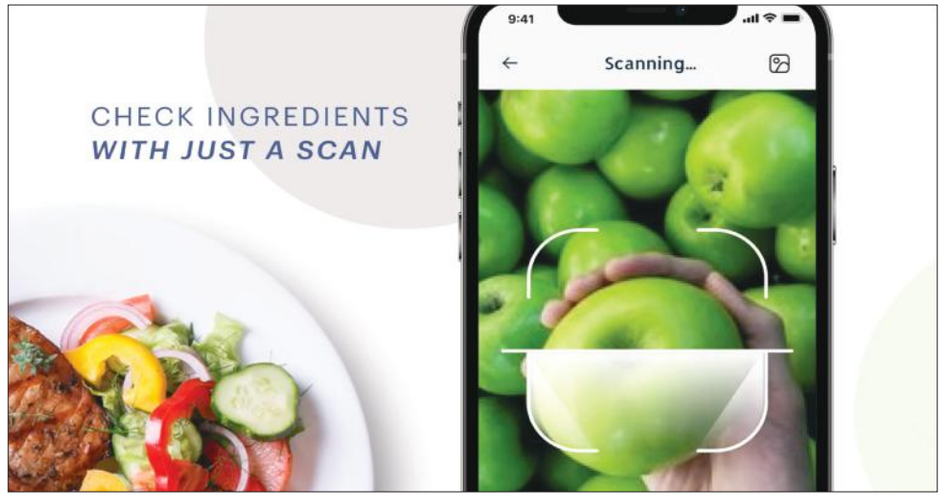
size.

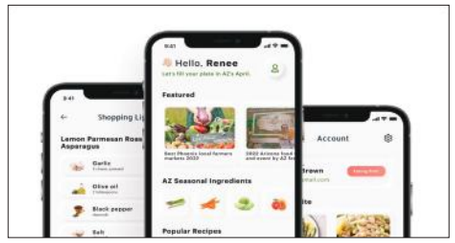
1920px x 1080px (1080p)

scan QR code to access full video.









Screenshots of promotion video

poster design.

medium.

Adobe Ai (digital illustration), Adobe Ps (typography)

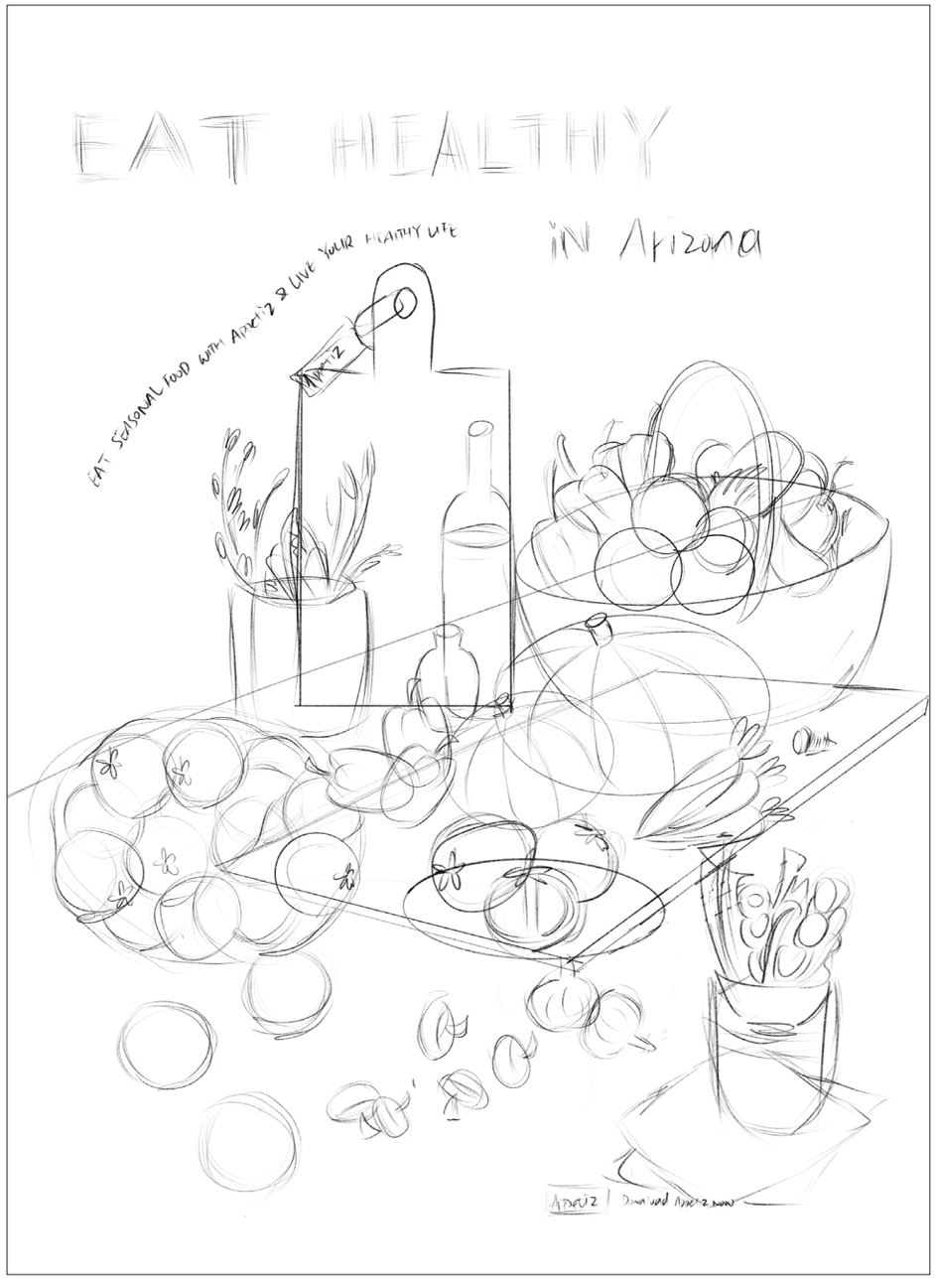


Illustration sketch

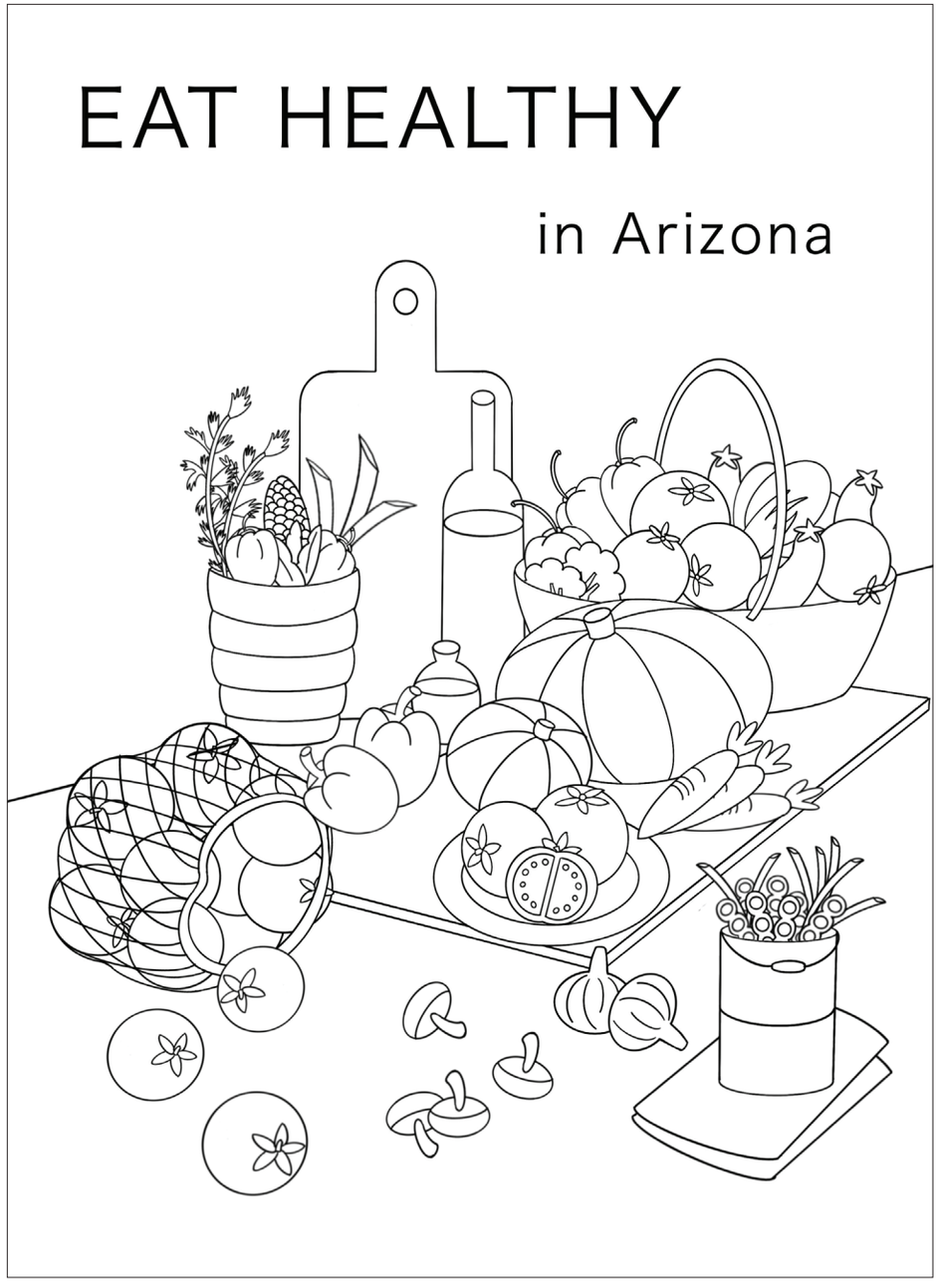
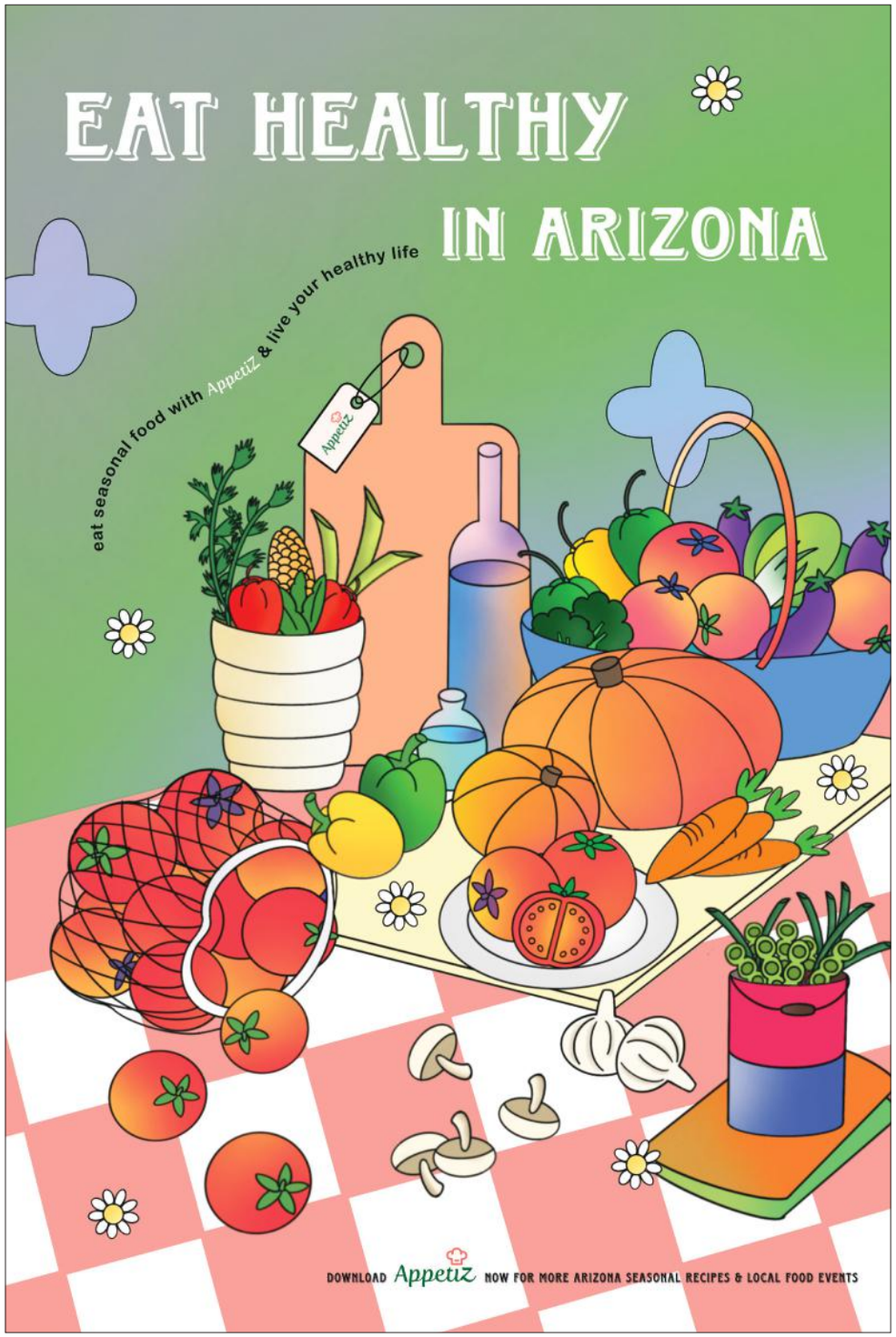


Illustration outline

Illustration with color

Color adjustment to match the brand



Final poster
Size: 20” x 30”

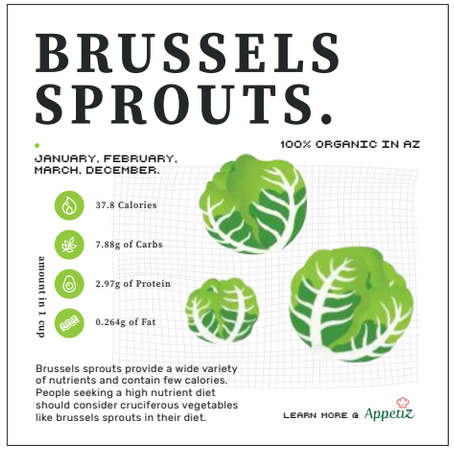
AR food cards design.

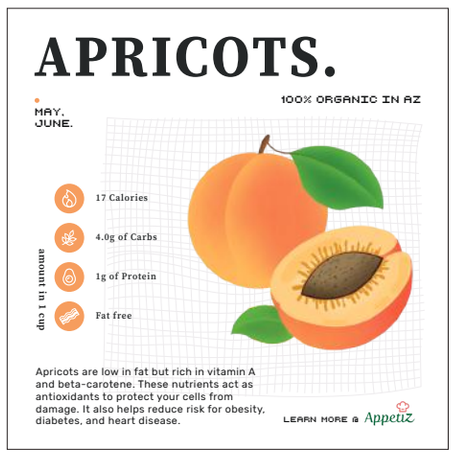
illustration medium.

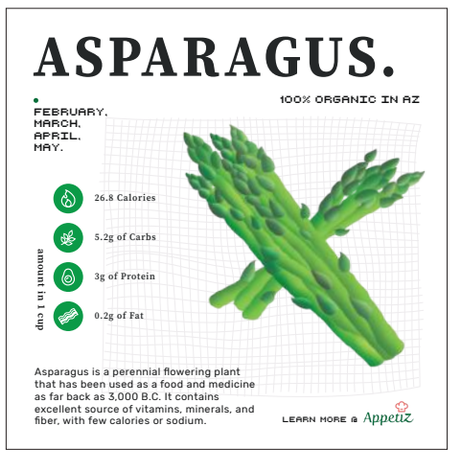
Procreate (illustration), Illustrator (typography)

size.

3” x 3”







POTATOES.

100% ORGANIC IN AZ

APRIL.
MAY.
JUNE.
JULY.

amount in 100g

- 87 Calories
- 20.1g of Carbs
- 1.9g of Protein
- 0.1g of Fat

Potatoes contain a number of minerals and plant compounds that may help lower blood pressure. The high potassium content of potatoes is particularly noteworthy.

LEARN MORE @ Appetiz

CHERRIES.

100% ORGANIC IN AZ

JUNE.
JULY.

amount in 1 cup

- 95 Calories
- 24g of Carbs
- 1.6g of Protein
- 0.3g of Fat

Cherries help reduce inflammation and lessen muscle soreness after a tough workout, and help lower blood pressure. Tart cherries are a source of melatonin, a hormone the body releases in preparation for sleep.

LEARN MORE @ Appetiz

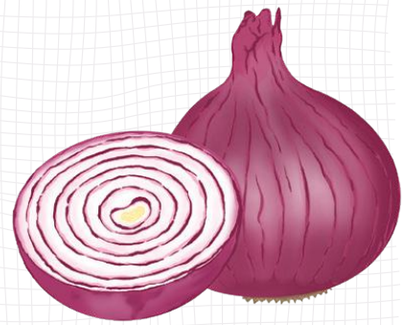
ONIONS.

100% ORGANIC IN AZ

APRIL.
MAY.
JUNE.

amount in 100g

- 40 Calories
- 9.3g of Carbs
- 1.1g of Protein
- 0.1g of Fat



Onions are rich in plant compounds and antioxidants, especially quercetin and sulfur-containing compounds. Colorful varieties, such as yellow or red ones, pack more antioxidants than white ones.

LEARN MORE @ Appetiz

PUMPKINS.

100% ORGANIC IN AZ

SEPTEMBER.
OCTOBER.

amount in 1 cup

- 49 Calories
- 12g of Carbs
- 1.76g of Protein
- 0.17g of Fat

High volumes of beta carotene within the pumpkin may helps reduce the risk of developing certain types of cancer, and offer protection against asthma, heart disease and age-related macular degeneration.

LEARN MORE @ Appetiz

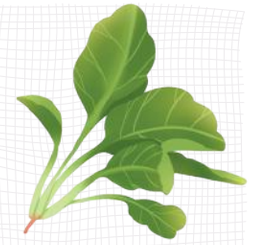
SPINACH.

100% ORGANIC IN AZ

JANUARY, FEBRUARY,
MARCH, OCTOBER,
NOVEMBER, DECEMBER.

amount in 100g

- 23 Calories
- 3.6g of Carbs
- 2.9g of Protein
- 0.4g of Fat



Spinach is high in insoluble fiber, which may boost your health in several ways. Eating spinach may benefit eye health, reduce oxidative stress, help prevent cancer, and reduce blood pressure levels.

LEARN MORE @ Appetiz

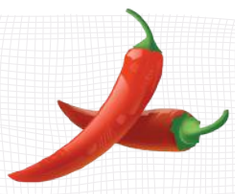
CHILI PEPPERS.

100% ORGANIC IN AZ

JULY, AUGUST,
SEPTEMBER

amount in 1 tablespoon

- 6 Calories
- 1.3g of Carbs
- 0.3g of Protein
- 0.1g of Fat



Capsaicin, the main bioactive plant compound in chili peppers may promote weight loss when combined with other healthy lifestyle strategies and may help relieve pain caused by acid reflux.

LEARN MORE @ Appetiz

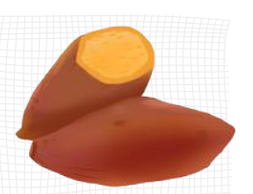
SWEET POTATOES.

100% ORGANIC IN AZ

JANUARY, FEBRUARY,
MARCH, DECEMBER.

amount in 1 sweet potato

- 112 Calories
- 26g of Carbs
- 2g of Protein
- 0.1g of Fat



Sweet potatoes are rich in antioxidants for cancer prevention and treatment. Purple sweet potatoes, in particular, are high in anthocyanins, which appear to promote apoptosis of cancer cells.

LEARN MORE @ Appetiz

POMELOS.

100% ORGANIC IN AZ

WHOLE YEAR
AROUND.

amount in 1 pomelo

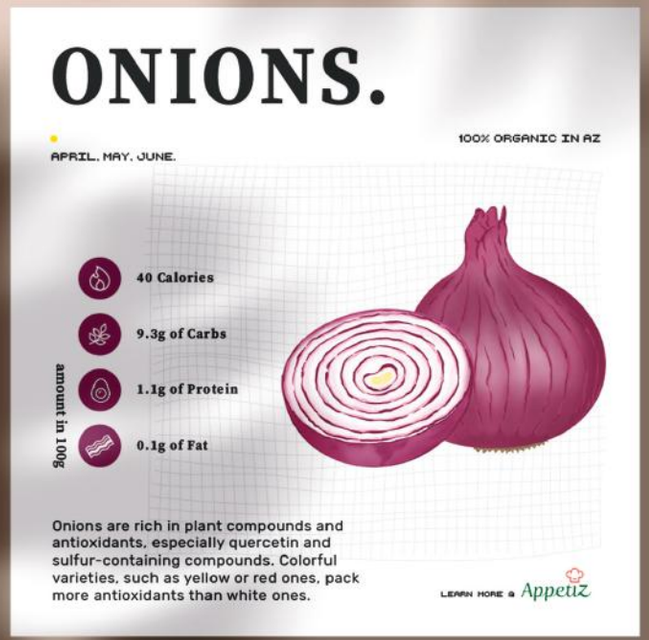
- 231 Calories
- 59g of Carbs
- 4.6g of Protein
- 0.2g of Fat

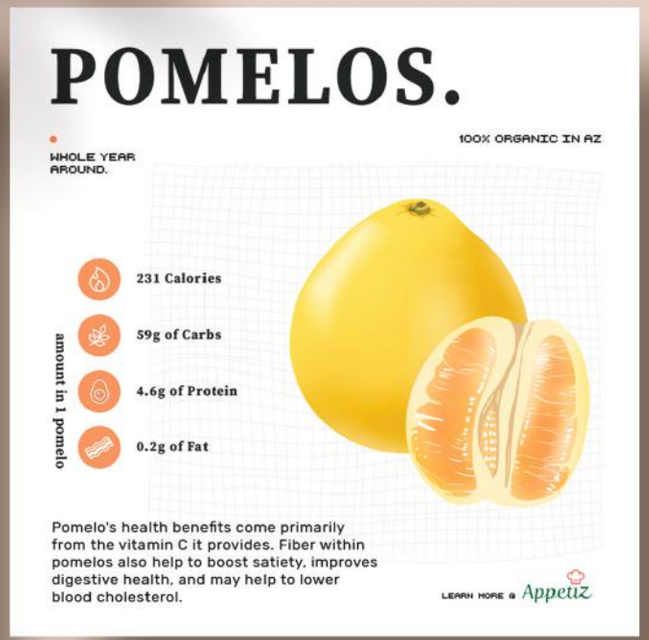
Pomelo's health benefits come primarily from the vitamin C it provides. Fiber within pomelos also help to boost satiety, improves digestive health, and may help to lower blood cholesterol.

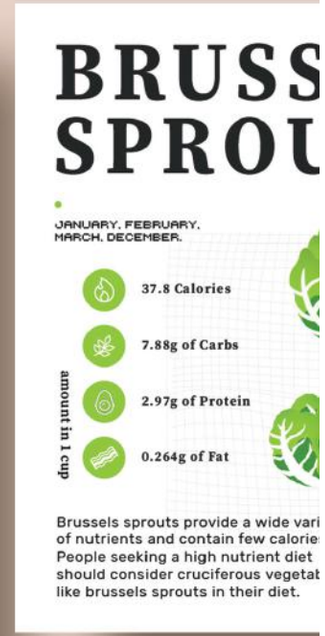
LEARN MORE @ Appetiz


SPINACH.
JANUARY, FEBRUARY,
MARCH, OCTOBER,
NOVEMBER, DECEMBER.
100% ORGANIC IN AZ
23 Calories
3.6g of Carbs
2.9g of Protein
0.4g of Fat
amount in 100
LEARN MORE @ Appetiz
9:41
Hello, Renee
Let's fill your plate in AZ's April.
Featured
Best Phoenix local farmers markets 2022
2022 Arizona food
and event by AZ fe
AZ Seasonal Ingredients
Popular Recipes
Lemon Parmesan Roasted Asparagus
in season
15m
low carb
Roasted Aloo Gobi (Potatoes & Cauliflower)
POTATOES.
APRIL,
MAY,
JUNE,
JULY.
100% ORGANIC I
87 Calories
20.1g of Carbs
1.9g of Protein
0.1g of Fat
amount in 100g
Potatoes contain a number of minerals and plant compounds that may help lower blood pressure. The high potassium content of potatoes is particularly noteworthy.
LEARN MORE @ Appetiz
CHILI PEPPERS.
JULY, AUGUST,
SEPTEMBER
100% ORGANIC IN AZ
6 Calories
1.3g of Carbs
0.3g of Protein
0.1g of Fat
amount in 1 tablespoon
Capsaicin, the main bioactive plant compound in chili peppers may promote weight loss when combined with other healthy lifestyle strategies and may help relieve pain caused by acid reflux


100% ORGANIC IN AZ
h may
ng
e
and
LEARN MORE @ Appetiz


ONIONS.
100% ORGANIC IN AZ
APRIL. MAY. JUNE.
40 Calories
9.3g of Carbs
1.1g of Protein
0.1g of Fat
amount in 100g
Onions are rich in plant compounds and antioxidants, especially quercetin and sulfur-containing compounds. Colorful varieties, such as yellow or red ones, pack more antioxidants than white ones.
LEARN MORE @ Appetiz


POMELOS.
100% ORGANIC IN AZ
WHOLE YEAR
AROUND.
231 Calories
59g of Carbs
4.6g of Protein
0.2g of Fat
amount in 1 pomelo
Pomelo's health benefits come primarily from the vitamin C it provides. Fiber within pomelos also help to boost satiety, improves digestive health, and may help to lower blood cholesterol.
LEARN MORE @ Appetiz


BRUSS
SPROU
JANUARY. FEBRUARY.
MARCH. DECEMBER.
37.8 Calories
7.88g of Carbs
2.97g of Protein
0.264g of Fat
amount in 1 cup
Brussels sprouts provide a wide vari
of nutrients and contain few calorie
People seeking a high nutrient diet
should consider cruciferous vegetat
like brussels sprouts in their diet.


ASPARAGUS.
FEBRUARY.
MARCH.
APRIL.
MAY.
100% ORGANIC IN AZ
AMOUNT IN 1 CUP
26.8 Calories
5.2g of Carbs
3g of Protein
0.2g of Fat
Asparagus is a perennial flowering plant that has been used as a food and medicine as far back as 3,000 B.C. It contains excellent source of vitamins, minerals, and fiber, with few calories or sodium.
LEARN MORE @ Appetiz
SWEET POTATOES.
JANUARY. FEBRUARY. MARCH. DECEMBER.
100% ORGANIC IN AZ
AMOUNT IN 1 SWEET POTATO
112 Calories
26g of Carbs
2g of Protein
0.1g of Fat
Sweet potatoes are rich in antioxidants for cancer prevention and treatment. Purple sweet potatoes, in particular, are high in anthocyanins, which appear to promote apoptosis of cancer cells.
LEARN MORE @ Appetiz
MUSHROOMS.
WHOLE YEAR AROUND.
100% ORGANIC IN
21.1 Calories
3.1g of Carbs
3.0g of Protein
Fat free
LEARN MORE @ Appetiz
APRICOTS.
MAY.
JUNE.
100% ORGANIC IN AZ
AMOUNT IN 1 CUP
17 Calories
4.0g of Carbs
1g of Protein
Fat free
Apricots are low in fat but rich in vitamin A and beta-carotene. These nutrients act as antioxidants to protect your cells from damage. It also helps reduce risk for obesity, diabetes, and heart disease.
LEARN MORE @ Appetiz
CHILI PEPPERS.
JULY. AUGUST. SEPTEMBER
100% ORGANIC IN AZ
AMOUNT IN 1 TABLESPOON
6 Calories
1.3g of Carbs
0.3g of Protein
0.1g of Fat
Capsaicin, the main bioactive plant compound in chili peppers may promote weight loss when combined with other healthy lifestyle strategies and may help relieve pain caused by acid reflux.
LEARN MORE @ Appetiz
MUSHROOMS.
WHOLE YEAR AROUND.
100% ORGANIC IN AZ
21.1 Calories
3.1g of Carbs
3.0g of Protein
Fat free
LEARN MORE @ Appetiz

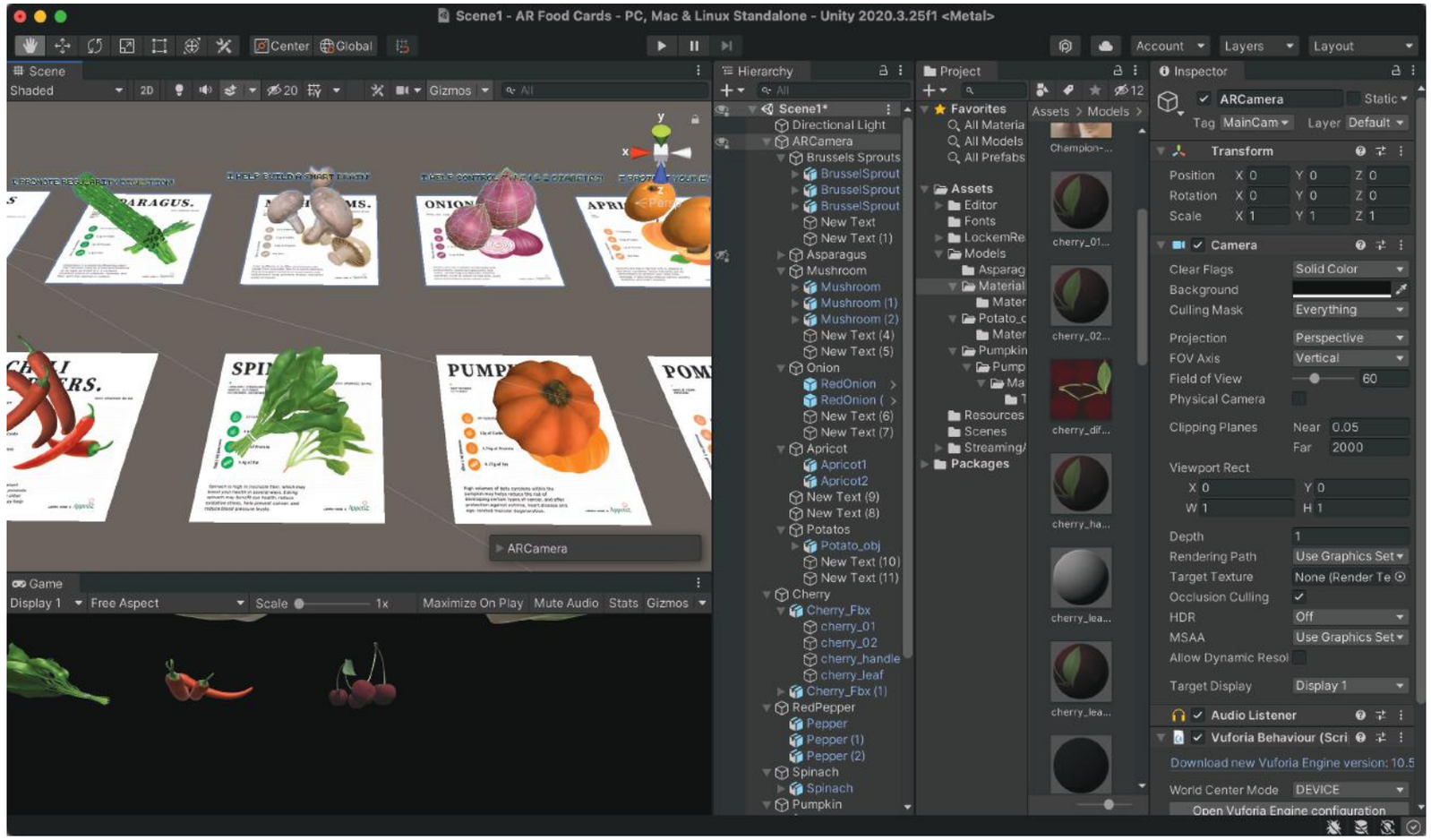
AR design.

medium.

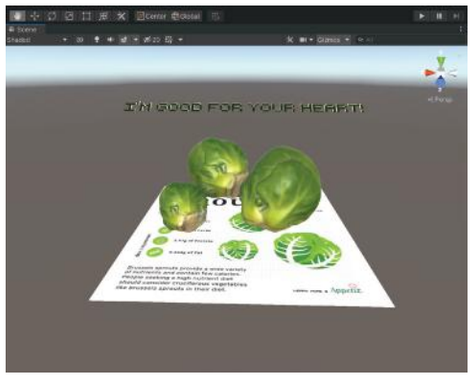
Unity 3D, Vuforia Engine

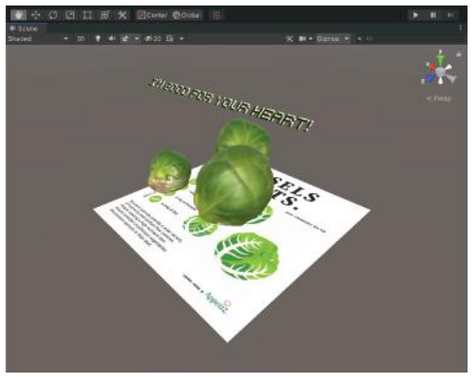
The technology used in this AR design is “Image Target” that represent images that Vuforia Engine can detect and track. The Engine detects and tracks the image by comparing extracted natural features from the camera image against a known target resource database. Once the Image Target is detected, Vuforia Engine will track the image and augment the content seamlessly using the best in-market image tracking technology.

Common uses of Image Targets include recognizing and augmenting printed media and product packaging for marketing campaigns, gaming, and visualizing products that was intended to be used in the environment.

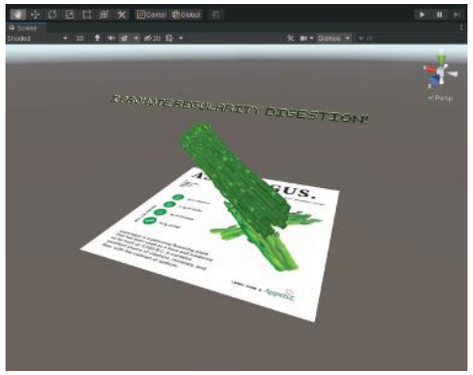


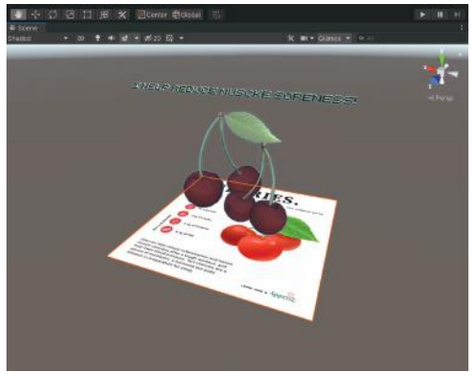
Overview settings in Unity 3D

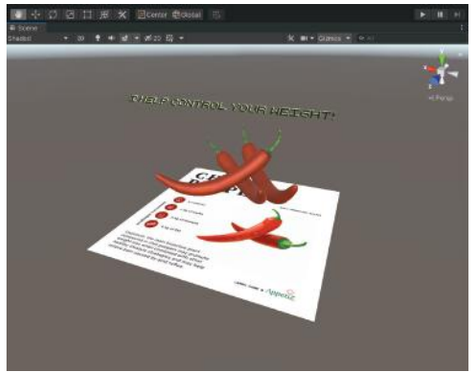


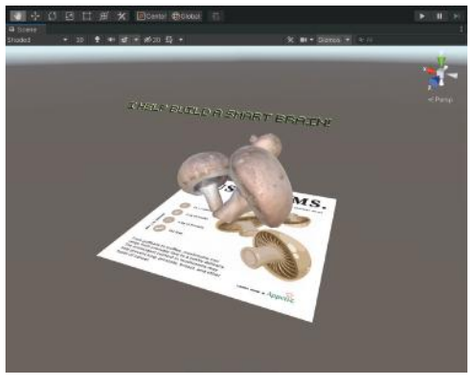


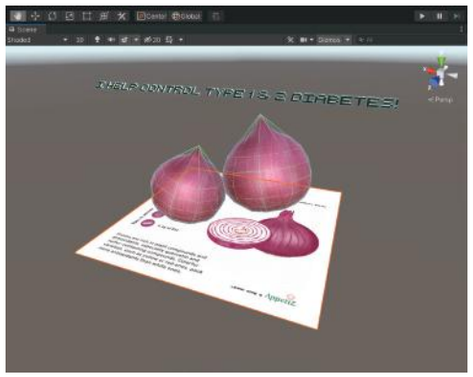
Scene settings for the example card (different views)

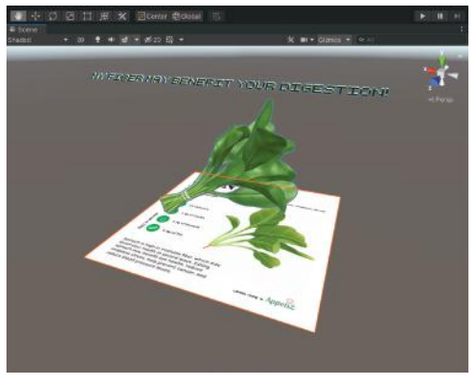


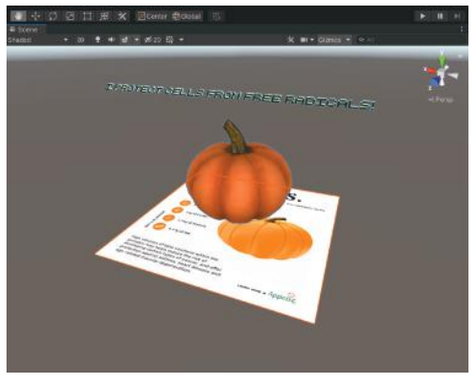


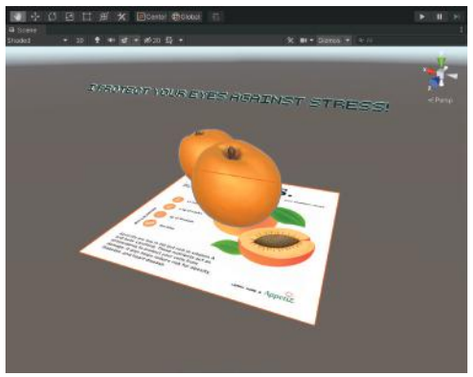


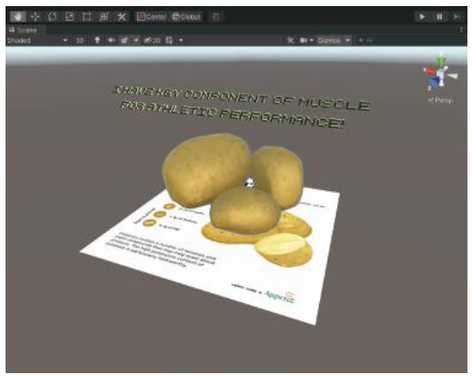


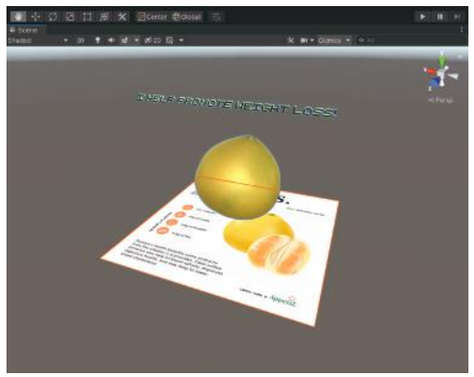


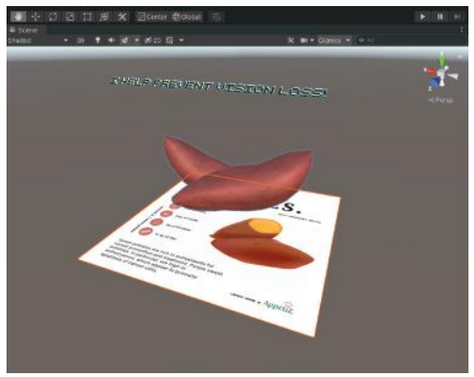












Scene settings for all food cards

App deployment on iOS systems.

medium.

Unity 3D, Xcode, iPhone 11 pro max.

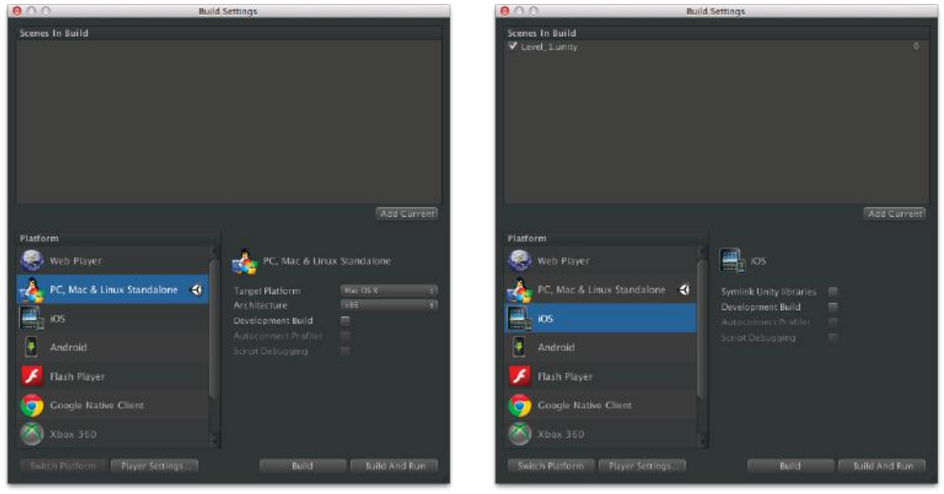
It's a best practice to test the Unity projects on an actual device. You can use your Apple account to develop apps on your iOS device without registration. (limited 3 apps per account) If you want to publish your apps, you need to be a registered Apple developer with device deployment capabilities.

Unity can build your project as an Xcode project that you can deploy to an iOS device. To set this up, select ***File\ Build Settings.***

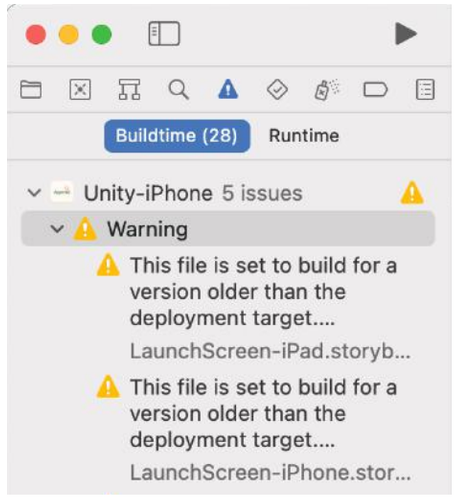
Add the scenes that will be part of the iOS build in the ***Scenes In Build*** section. Select the iOS platform and click ***Switch Platform***. Then click on the Player Settings button found at the bottom of the Build Settings dialog. Unity Editor's Inspector should now display Player Settings that you can customize for your iOS deployment.

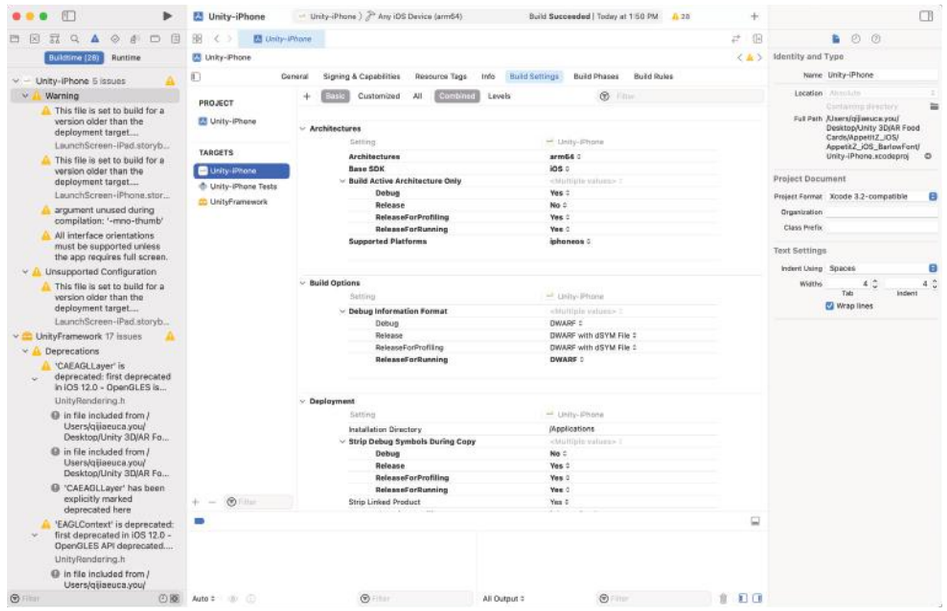
Click the ***Build*** button to initiate the build process. You'll be asked to specify a location to save the Xcode project. Unity will now build the project and open the folder that contains the Xcode version.

Open the project using Xcode, make sure that the scheme is set to Unity-iPhone, select your device, and build the app project. ***Run the app***. You should first see a splash screen with the default Unity logo. Then, your app should come up. (Abernathy, 2013)

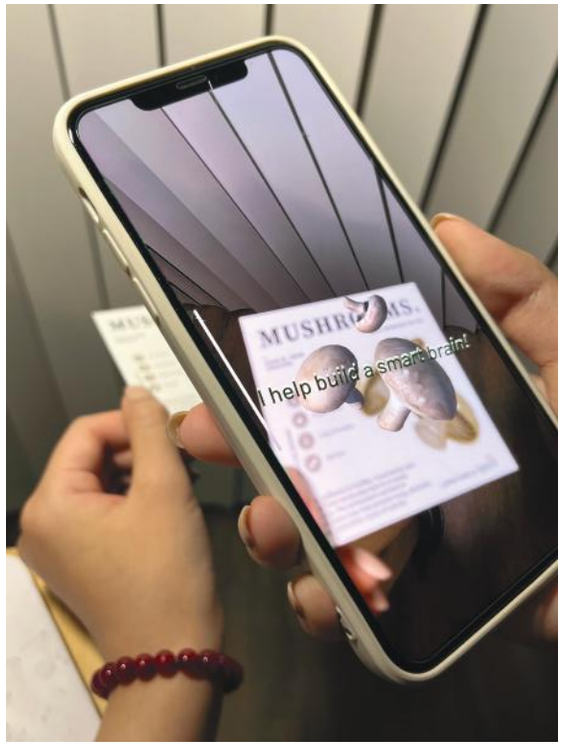


Build settings





Build the app through Xcode



Test on an iOS system device

food calendar design.

medium.

Adobe Id (typography), handcraft

size.

4” x 6”

There are so many kinds of delicious produce grown across Arizona, but one group of crops is extra special: indigenous fruits and vegetables! You can find tons of produce native to Arizona – mushrooms, broccoli, citrus, beans, peppers, prickly pear fruit, and more all have a rich history based on our state’s diverse *landscape and climate*. Sustenance in the desert requires time and care. Learning about these plants can teach us about our local culture, our environment and food systems, and the importance of healthy diets. Also, learn about Arizona seasonal products will help us consume fresher, tastier and more nutritious food.

front.

Images of Arizona seasonal vegetables and fruit of the month; Calendar of 2023.

back.

Illustration with lines for note-taking.

01 January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

02 February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

03 March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

04 April

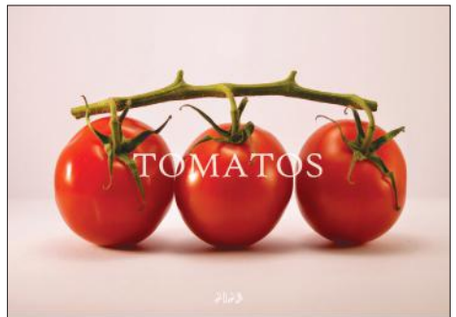
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

05 May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

06 June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	



07 July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

08 August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

09 September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

10 October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

11 November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

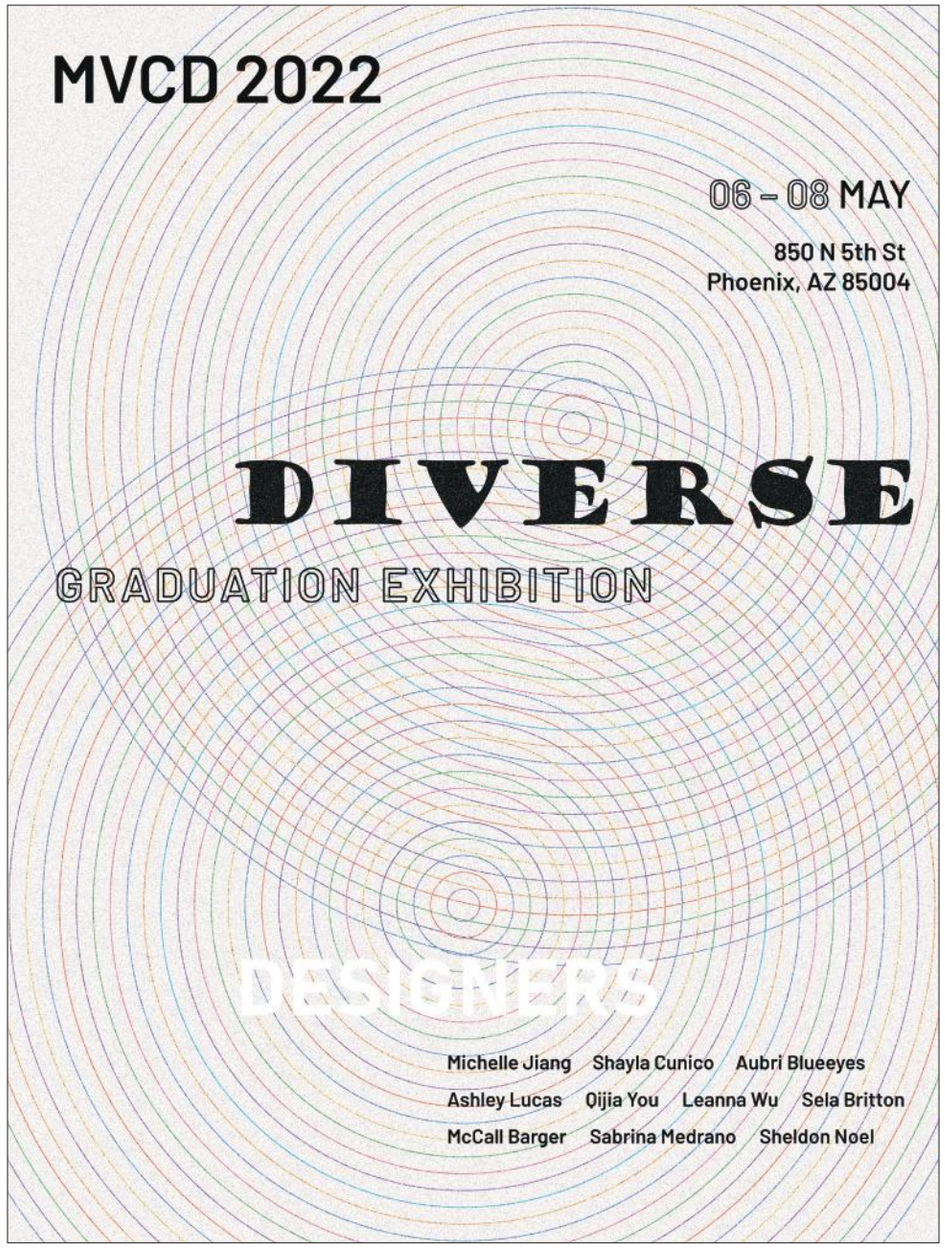

LEMONS
09 September
Sun Mon Tue Wed Thu Fri Sat
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

Exhibition Design.

In the last year of the MVCD program, we gathered extensive research and explored innovative solutions for our capstone topics. Our topics focus on different social issues and explore how visual communication can be essential for creating a better and more sustainable future. To raise awareness and initiate actions towards our topics, we will design and execute this Graduation Exhibition as a platform to display how visual communication designers can help tackle these issues and provide potential solutions. Our goal is to create an immersive experience that will leave our audience feeling inspired to initiate positive, transformative change in our society. It is important to us that our projects are displayed professionally, so the social issues and initiatives are taken seriously, promote dialogue amongst attendees, and act as starting points that could lead to real-world solutions.

Since this book was designed and printed before the final exhibition, this section will only display some ideas and sketches I made for it. After the exhibition structure was decided and approved, I built the prototype structure to test my exhibition design content, such as height of the text, font size, image size, and layouts. The final exhibition display will be included in the e-book version after my graduation.

exhibition poster design.



Poster scheme 1

Poster scheme 2

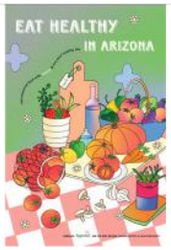
Poster scheme 3

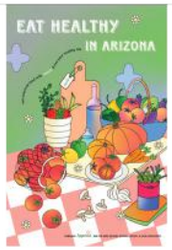
Poster scheme 3 revision

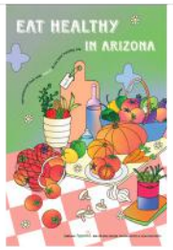
exhibition panel design.

Scheme 1


RITUCHARYA
Ritu, the season, classified by different features expresses different effects on the body as well as the environment. Charya, rules and regimens, regarding diet and behavior to acclimatize seasonal enforcement easily without altering body homeostasis. Start to learn about Arizona seasonal products for fresher, tastier and more nutritious food.
Sping: mid Feb. – late Apr.
Dry Summer: May & Jun.
Wet Summer: Jul. – Sep.
Fall: Oct. – mid Dec.
Winter: Dec. – mid Feb.
FOOD & MATCH
Let's match vegetables and fruits with their peak seasons in Arizona.
POMELO
MUSHROOM
CABBAGE
APRICOT
CHILI PEPPER
PECAN
AR FOOD CARD
Scan Food Cards in Appetiz app
RITUCHARYA


EAT HEALTHY
IN ARIZONA


EAT HEALTHY
IN ARIZONA


EAT HEALTHY
IN ARIZONA


RITUCHARYA
Ritu, the season, classified by different features expresses different effects on the body as well as the environment. Charya, rules and regimens, regarding diet and behavior to acclimatize seasonal enforcement easily without altering body homeostasis. Start to learn about Arizona seasonal products for fresher, tastier and more nutritious food.
Sping: mid Feb. – late Apr.
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FOOD & MATCH
Let's match vegetables and fruits with their peak seasons in Arizona.


POMELO
MUSHROOM
CABBAGE
APRICOT
CHILI PEPPER
PECAN

Scheme 2

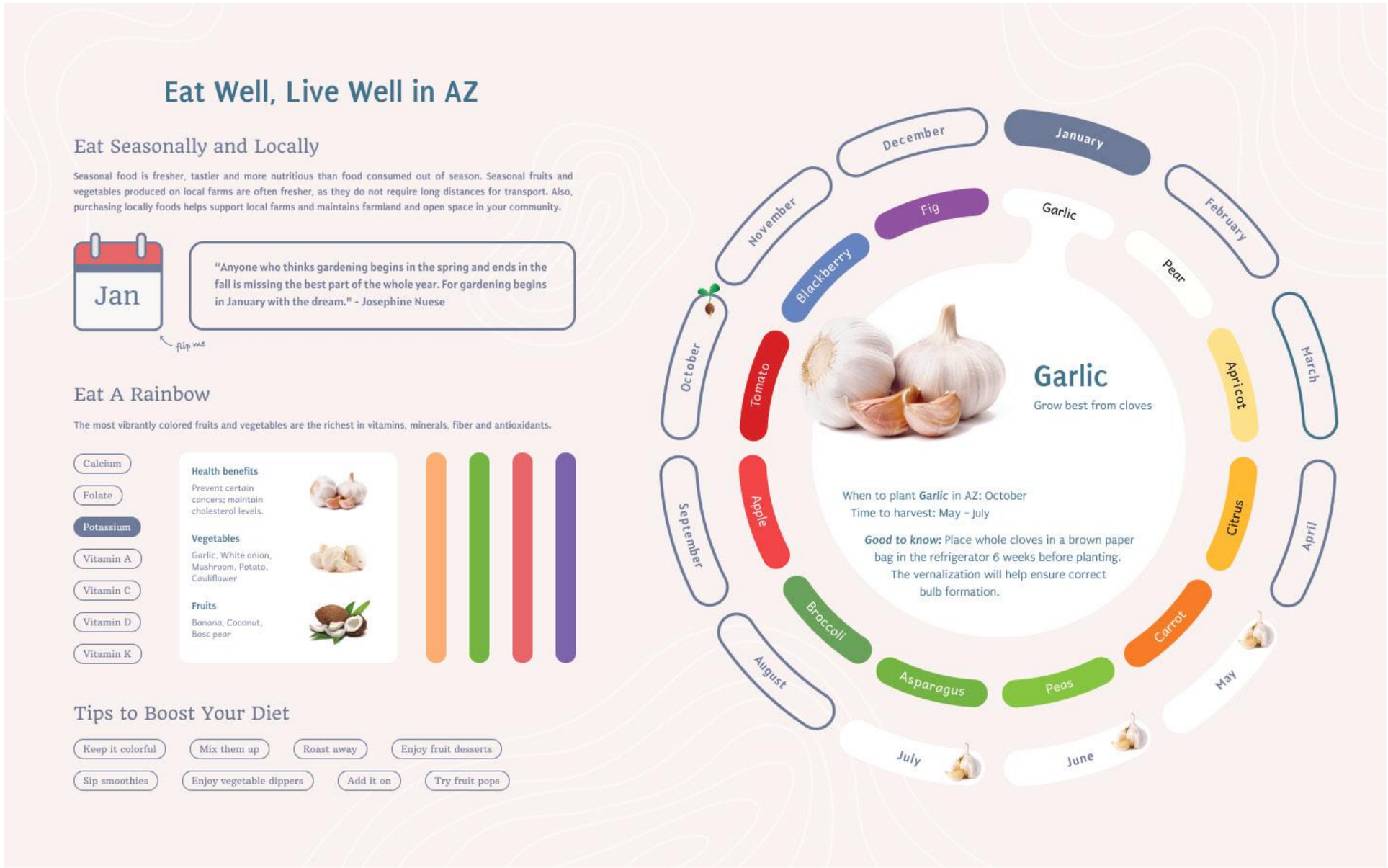
final exhibition design.

Public opening night

appendix a.

Interactive Infographic Design (Link).

scan QR code to access interactive infographic.

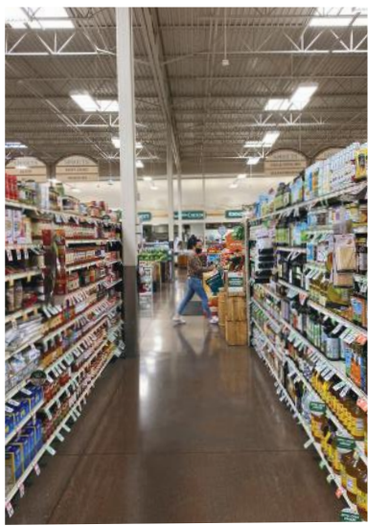


Overview of the infographic

Appendix b.

Observation Photos.

organic markets.



regular chain supermarkets.

Appendix C.

Farm-to-school Census.

census responses for Arizona.

total number of responding School Food Authorities (SFAs): 341

total number of school in responding SFAs: 1,305

total number of students in responding SFAs: 796,464

farm-to-school participation: 52.2% (178)

Length of farm-to-school participation by SFAs in Arizona.

Farm to school has been picking up momentum over the last 10 years. See how long SFAs in Arizona have been going local.

	% of F2S SFAs	Total F2S SFAs
Less than 3 years	74.7%	133
3-5 years	17.4%	31
6-10 years	4.5%	8
More than 10 years	3.4%	6

Food and nutrition education in Arizona

Farm to school activities can include educational experiences in the classroom, the garden, and on the farm. See how SFAs in Arizona are bringing farm to school alive with hands-on learning.

	% of F2S SFAs	Total F2S SFAs
Hold taste tests & cooking demos	26.4%	47
Use USDA Team Nutrition materials	9.6%	17
Use educational edible school garden	15.7%	28
Hold student field trips to farms	26.4%	47
Have Farmers Visit	9.6%	17
Do farm to school activities in pre-K	12.4%	22

885 schools
573,065 students in participating SFAs

Farm-to-school participation in AZ

Farm to school is growing in Arizona! Local food and agricultural education activities are showing up in the cafeteria, the classroom, and the garden. Check out how many schools and students are served by farm to school SFAs.

74.7%
133 SFAs

Arizona SFAs serving local food

Farm to school means more fresh, local food is on the menu. Across the country, SFAs engaged in farm to school report serving higher quality foods in school meals and increased participation in school meals.

53.4%
95 SFAs

Arizona SFAs providing food, nutrition, or agricultural education

Farm to school activities include experiential learning in the classroom, in the garden, and on the farm. Arizona SFAs offer opportunities such as taste testing, school gardening, and farm field trips.

25.3%
45 SFAs

Arizona SFAs that have edible gardens

School gardens are becoming a popular outdoor extension of the classroom. Across the curriculum, school gardens can bring learning to life and produce food to serve in school meals.

Local foods served daily or weekly in meals or snacks

As farm to school has grown, so have the local options students enjoy at meal time. Many schools are serving fresh and local fruits, vegetables, dairy, proteins, or grains daily, a few times a week, or weekly. Schools meet federal nutritional standards and students get healthy, flavorful, options.

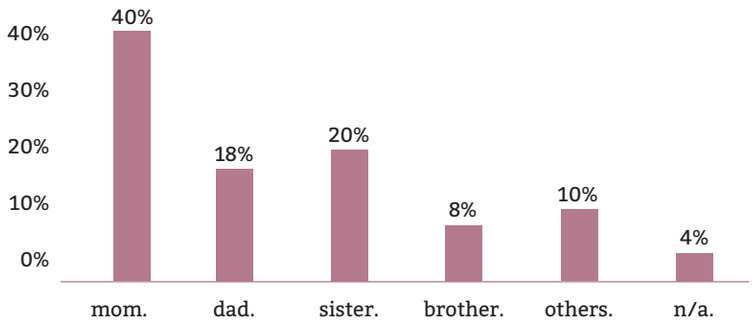
	% of F2S SFAs	Total F2S SFAs
Serve local fruit at least weekly	26.4%	47
Serve local vegetables at least weekly	9.6%	17
Serve local milk at least weekly	15.7%	28
Serve other local dairy at least weekly	26.4%	47
Serve local protein at least weekly	9.6%	17
Serve local grains at least weekly	12.4%	22

Appendix d.

Survey Result.

participants: 50

relationship to child(ren).

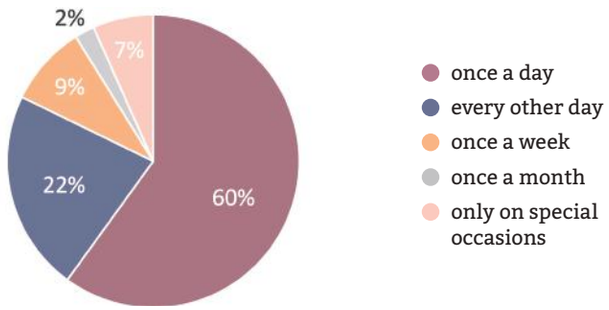


typical dinner for child(ren).

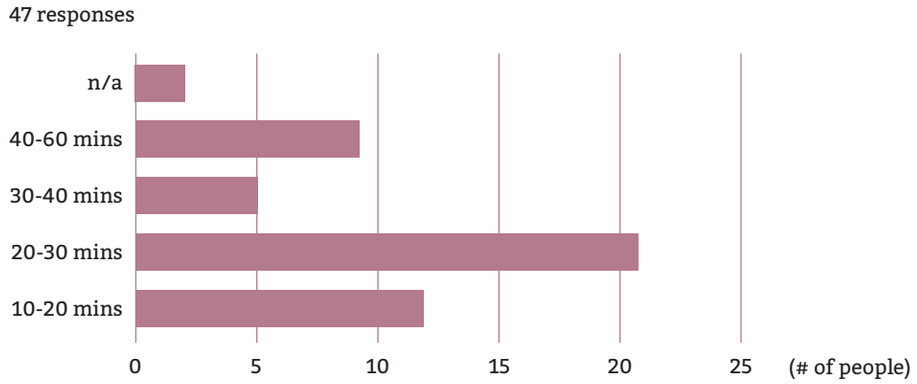
Protein, veggies, grain & juice / chicken fingers, homemade pizza / veggies, rice & chicken / take out / shrimp, rice & salad / chickpea pasta, parmesan cheese and spices / macaroni and cheese, bell peppers, broccoli / salad & burgers / beans and a protein / grilled cheese, chinese style broccoli / frozen dinners & juice ...

who decides what food for meals?

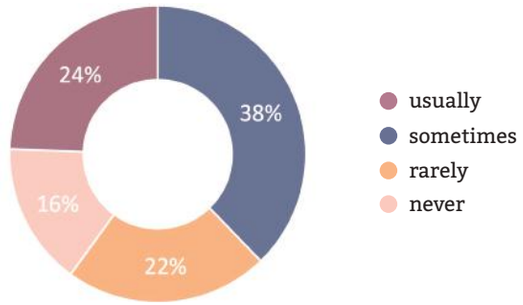
frequency of eating dinner together with family.



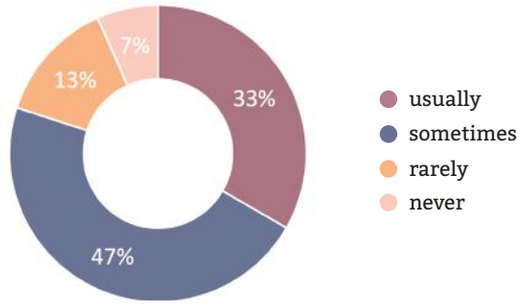
length of mealtimes.



if the TV on during the meal time.



if children go grocery shopping with food providers.

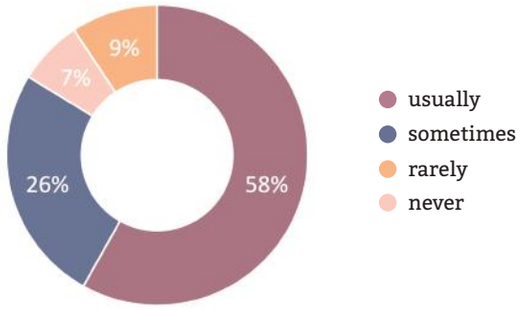


how do kids get their ideas for food you usually don't buy.

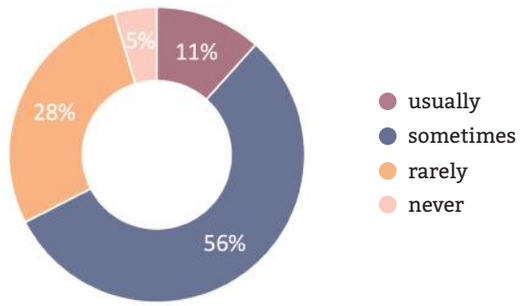
TV / online / grandparents / friends at school / social media / peers / ads / Youtube / commercials / local restaurants / my conversation with others ...

Appendix d.

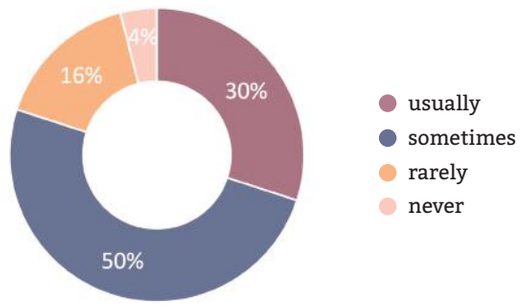
frequency of writting down a shopping list.



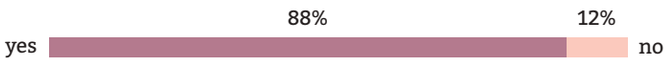
frequency of providing “take out” for your family.



frequency of using recipes while cooking.

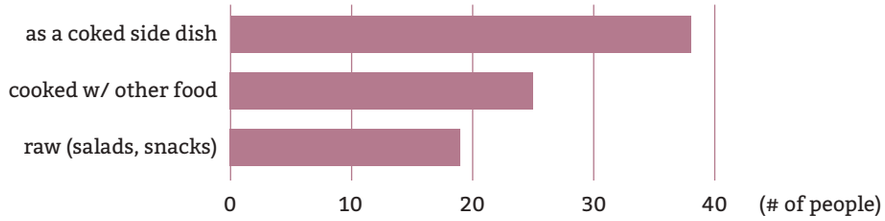


understand consequence of overweight.



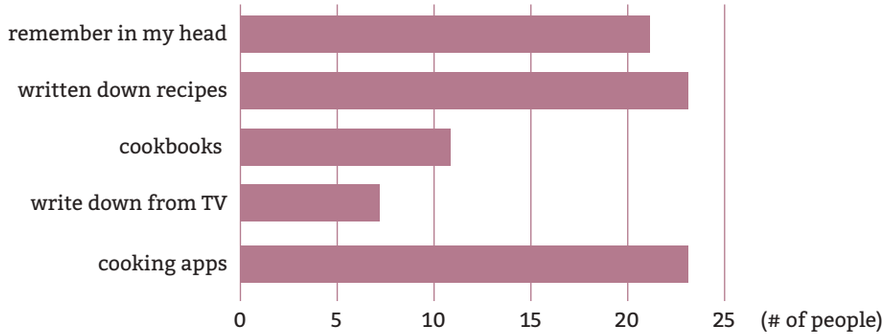
ways to serve vegetables.

46 responses



types of recipes used while cooking.

48 responses



suggestions for parents about helping their children eat more vegetables and fruits.

mix vegetables in with stuff they like so they won’t notice the difference /

mix them in smoothies / add to recipes like pasta sauce / serve as snacks /

get their friends to eat them / make them tasty / make it looks fun /

listen to their input and find out what they like /

cook them into dessers and sweets (i.e. zucchini brownies) /

embed it in them and don’t allow desers till they finish their plate / reward them /

teach them healthy food relationships / keep relaying the health benefits /

Mac and Cheese with mixed in veggies is always a hit / Also make it not such a big deal about eating / like don’t keep pressuring the child /

find good recipes / cook with carbs / cook with your kids.

Citation.

secondary research.

see page 22. *literature review matrix*

others.

Innovation inspired by nature. (2021, December 20). Retrieved March 27, 2022, from https://biomimicry.net/

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pictures.

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Colophon.

software.

Adobe Indesign 2022

Adobe Photoshop 2022

Adobe Illustrator 2022

Adobe AfterEffects 2022

Adobe Media Encoder 2022

Procreate (digital drawing)

Figma (prototyping)

Unity 3D

tools.

Figma (app design)

Vuforia Engine (import to Unity 3D)

Xcode (app development for iOS)

NEXIGO 1080p Full HD Webcam

websites.

Unsplash.com (copyright free photos)

Storyblocks.com (copyright free footages)

Youtube.com

25xt.com (mockups)

computer.

MacBook Pro (16 inch, 2019)

Processor 2.6 GHz 6-Core Intel Core i7

Memory 16 GB 2667 MHz DDR4

Graphics AMD Radeon Pro 5300M
4 GB, intel UHD Graphics 630 1536 MB

Serial # C02CMB23MD6M

typography.

Bitter (Regular) 8pt

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Minion Variable Concept (Regular) 10pt

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