5-2021

Teaching Elementary School Children About Nutritionn

Dana Mastro

Teaching Elementary School Children About Nutrition

Dana Mastro

A Capstone project for the Bachelor of Arts in Human Development and Family Studies

Teaching Elementary School Children About Nutrition

Introduction

Elementary school curriculum often lacks focus on nutrition education. Without nutrition education, children may develop poor eating habits, poor physical health, and lower quality of life. In order to address this issue, I have developed a three-day lesson for four 1st and four 2nd graders at Sheldon Acres Child Development Center in Elk Grove, California.

Needs Statement

`Elementary school curriculum often lacks focus on nutritional education. Many children eat what their parents or caregivers feed them or make choices of eating by taste and not by nutritional value. Children themselves lack knowledge on the reasons as to why they should eat certain foods and the effects that nutrition has on their body. Early education and intervention is important to begin healthy eating habits and provide knowledge of healthy eating in which children are able to continue throughout childhood and into adulthood. Several interventions set in place, such as Harvest of the Month, in which children are introduced to locally grown fruits and vegetables, mandated fresh produce options at breakfast and lunch through Michelle Obama's Health Initiative, and free and reduced meals so that all children have access; children are introduced to fresh fruits and vegetables, moderate portion sizes, and help provide children with a variety of vitamins and nutrients needed to fuel the body. Schools are one of the key aspects of promoting a healthy lifestyle, along with healthy eating by setting positive models for children that may not see at home (Toussaint et al., 2019). Nutritional education helps promote healthy eating habits, nutritional literacy, and teaches children mathematical skills.

Early childhood nutritional education and intervention help to promote healthy eating habits, such as mindful eating. Since eating habits are established early in childhood, it may be important to teach children to make healthy food choices (Bélanger et al., 2016). With an education in nutrition, children are able to learn about mindful eating and learn habits that support. Research suggests that children ages 6-12 experience more food craving at a much higher intensity than adolescents and adults (Colagiuri and Lovibond, 2015). Pierson et al, (2019) states that in their study that there is evidence that early intervention decreased craving and increased fruit consumption. Through nutritional education, children are exposed to more fruits and vegetables, and healthy eating habits and mindful eating are an important aspect of nutrition, so it is important to educate children on their food intake as well as the amount of food intake.

With nutritional education, children are able to learn and begin to understand nutritional literacy. According to Doustmohammadian, Omidvar and Shakibazadeh (2020) nutritional literacy is categorized into three levels: understanding and comprehending practical skills to promote healthy eating, interpersonal skills with experts and peers to share and discuss necessary food and nutritional information, and the ability to critically analyze food and nutrition information. They will be able to start practicing healthy eating, as well analyze nutritional information and begin to understand the effects that it has on the body. Nutrition plays an important role in supporting structural and functional “growth” of the human brain throughout childhood (Paus, 2010). With nutrition literacy, children are able to understand the effects of nutrition on the brain and make healthy eating choices that have a positive outcome on the

growth of the brain. Children will also get a broader and more in-depth lesson and understanding of what vitamins and other nutrients are essential to the body and their purpose, which is important for a child's health. They are able to build on that knowledge through their entire life and use that knowledge in everyday food choices.

Nutritional education can also teach academic skills in mathematics. There have been interventions in school curriculum that have integrated nutrition and math to teach students about both. A study done in Australia that follows a sequence that will teach students about nutrition concepts on portion/serve sizes in which mathematical concepts on volume and capacity are gradually embedded within each subsequent lesson found effective and positive outcomes in both areas (Follong et al., 2020). This will help teach students about nutrition while also teaching and using math skills and concepts. Follong et al., (2020) also found that people of all ages have difficulty accurately estimating food volume and portion size. This integration can aid students in making connections in mathematical skills learned in the classroom and healthful living. These connections can be beneficial to helping children's long-term health and nutritional literacy into adulthood (McLeod, Carraway-Stage, Hovland, & Duffrin, 2012).

Given that development of healthy eating habits, nutritional literacy, and mathematical skills are of concern in nutritional education, I intend to provide a three-day lesson about nutritional education for 1st and 2nd graders at Sheldon Acres Child Development Center in Elk Grove, CA.

Theory

According to Jean Piaget, children observe the world around them and build upon knowledge already previously held. Children are constantly learning through accommodation, assimilation, and reflection-thus learning is an ongoing process. Each experience stimulates the construction of knowledge and further develops cognitive capabilities. (Hinde and Perry, 2007). In Piaget's Theory of Cognitive Development, there are four stages: sensorimotor, preoperational, concrete operational, and formal operational thought. As children progress through the stages, they build on their ability to think logically and abstractly through their interactions with the environment.

In the preoperational stage, children are using their language skills to represent objects, images, and words. In this stage, they classify objects by a single feature and have trouble separating objects into more complex and abstract classifications. For example, they are able to engage in symbolic thinking and know certain objects belong in a certain classification, as in healthy and unhealthy. As they develop into the concrete operational stage, thinking becomes more abstract and inductive. Through each stage, children use their previous knowledge and experiences to better understand the world and information that is given. At ages six to seven, children have an idea and the ability to distinguish and understand the basics of what nutrition is. Since the participants are about to develop into the next stage of concrete operational thought, I will help them increase their classification thinking and inductive reasoning to better understand nutrition through a series of lessons and activities.

Consideration of Diversity

An issue of diversity of my participants is that they are all of middle and higher socioeconomic status because of the price of the preschool and neighborhoods surrounding it. The cost of the preschool to send a child full time is about $950 a month with an additional, nonrefundable, $100 activities fee due every August. It is one of the more expensive preschools in Elk Grove. It is located in the more expensive and more rural parts, with private neighborhoods and private farms. Most of the children live on acreage and parents have higher salary careers. Through my observation, there will also be an issue with diversity of race. My participants will mostly be of Caucasian descent. This is not representative of the preschool as an entirety, as there is more racial diversity in the three to five-year-old section of the preschool. Another issue of diversity is that my participants must be six to seven years old since the content is specific to those ages and would not apply to younger and older children. The content would be too challenging for younger participants and too easy for older participants. The nutritional information that will be presented to the participants will be based on a typical American diet and not representative of other culture's diet and nutrition. This is significant because other cultures may have different standards of nutrition and diet that is taught to them at home. This will not be taught or reflected in my lessons and activities.

Learning Outcomes

I intend to provide a three-day lesson plan to 1st and 2nd graders at Sheldon Acres Child Development Center in Elk Grove, California.

By the end of my project, participants will be able to:

1. Distinguish which snacks are healthy and sometimes snacks.
2. Create a healthy plate.

3. Create a healthy grocery list.

Method

Day 1

I first introduced myself to the participants and explained to them why I am there. I then asked the class to name all the fruits and/or vegetables they can name. After about five minutes, I then read to them *Gregory, the Terrible Eater* by Mitchell Sharmat (2009). This picture book demonstrates the concept of food moderation and eating habits. After about 6 minutes, once I finished reading the book, I discussed food moderation and how that connects with snacks. I then asked them what the book was about and had them explain healthy snacks and sometimes snacks, snacks to eat in moderation. After about 5 minutes, I laid out ten pictures of healthy snacks and sometimes snacks. See Appendix A. After they were done, I thanked them and had them tell me their favorite snack.

Day 2

On the second day, I asked them to tell me what fruit or vegetable they had the previous day. After each participant told me what fruit or vegetable they had, I took out a white board and had them tell me three vegetables, three fruits, three grains, and three proteins. See Appendix B. After 5 minutes, I showed them a picture of a healthy eating plate, explained the foods that belong in each section, and what size portion the section should be. See Appendix C. After about 6 minutes, I handed each of them a paper plate and a tub of markers and had each participant make their own healthy eating plate for lunch. At the end, I had them compare and share their plates with each other and the picture of the healthy eating plate I presented to them earlier.

Day 3

On the third day, I first asked them to tell me sometimes snacks and I wrote down their answers on a white board. See Appendix D. After 3 minutes, I then discussed healthy sugars and fats and unhealthy sugars and fats. I explained the difference of each and the different effects they have on the body. Then, after 7 minutes, I had them name at least one food that has healthy sugar, one food that has unhealthy sugar, one food that has healthy fat, and one food that has unhealthy fat. See Appendix E. After 3 minutes, I gave them a sheet of paper and explained that each of them will make a healthy grocery list for lunch. I then showed them mine as an example. See Appendix F. They had to have at least two fruits, two vegetables, one protein, and one grain. They were allowed to put more. At the end of the activity, I concluded by thanking them for their participation.

Results

Learning outcome 1 was that participants would be able to distinguish between healthy and sometimes foods when shown 10 photographs (e.g., an apple and a bag of chips). I believe this learning outcome was met. I read them a book, *Gregory, the Terrible Eater* by Mitchell Sharmat (2009), which explained moderation in food, then had a discussion on food moderation. After those two activities, I showed them 10 pictures of healthy snacks and sometimes snacks. All eight participants were able to get 9 out of 10 pictures correct. From the book and the discussion, the participants were able to determine which snacks were healthy and which snacks were ones to eat in moderation, sometimes snacks. See Figure 1.

Learning outcome 2 was that the participants were able to create their own healthy plate. I first had the participants tell me three fruits, vegetables, grains, and proteins. I then showed them a healthy plate that explained what types of food belong in each section and the portion size that should be on the plate. I then handed out paper plates for them to make their own healthy lunch plate. When I handed out paper plates for them to draw a healthy plate, 7 out the 8 participants were able to create a healthy plate that matched what a healthy plate should contain. See Figure 2. One participant used a quarter of the plate for dessert. Since, 87% of the participants were able to correctly create a healthy plate, I believe the outcome was met.

Learning outcome 3 was that the participants would be able to create their own grocery list that would have two vegetables, two fruits, one protein, and one grain to help go along with their healthy plate. I had the participants make a grocery list that listed two fruits, two vegetables, one protein, and one grain. All eight participants were able to create a healthy grocery list. See Figure 3. I believe this is evidence that learning outcome 3 was met.

Discussion

I believe that this project was successful. The participants were engaged and had fun. They were excited when presented with each activity. They also were able to build their knowledge on nutrition and learn more about food. I think this project helped the participants think more about what type of foods they eat and how much of a certain food to eat since all three learning outcomes were met. The participants are at an age where they are impressionable and still being served what is made for them, but are becoming more independent and know what they want. This project gave them more insight into foods and how their plate should look.

The participants are in Piaget's preoperational stage, moving into the concrete operational stage. They are able to classify objects and put them into a category, but this project helped move more into abstract and inductive reasoning. Most foods they wanted to classify as healthy and unhealthy, but were able to start thinking more about food in moderation. I also think the participants were able to start thinking more abstractly when thinking about sugars and fats and the amount of types of food they intake. I believe the participants are able to start thinking about the different types of food and how much of it to have.

If I had to do this project over again, I wish that I would have given a pretest in the beginning to see what knowledge they had before I started. I think that if I had given the pretest, I would have changed the activities around since they knew more than I had expected when I asked questions during the project. I also wish that I had given a post test to see if they had learned more, and I could compare their answers. I also wish I was able to do an activity outside, I believe that this would have helped there be more of a variety of activities. Though, I feel like the participants learned more about the topic and left knowing more about nutrition that will help them make decisions about their food choices in the future.

References

Belanger, M., Humbert, L., Vantanparast, H., Ward, S., Muhajarine, N., Froelich Chow, A., Engler-Stinger, R., Donovan, D., Carrier, N., Leis, A. (2016). A multilevel intervention to increase physical activity and improve healthy eating and physical literacy among young children (ages 3-5) attending early childcare centres: the Healthy Start-Depart Sante cluster randomized controlled trial study protocol. *BMC Public Health, 16,* 1-10. doi:10.1186/s12889-016-2973-5

Colaguiri, B., and Lovibond, P.F., (2015). How food cues can enhance and inhibit motivation to obtain and consume food. *Appetite, 84*, 79-87. https://doi-org.csumb.idm.oclc.org/10.1016/j.appet.2014.09.023

Doustmohammadian, A., Omidvar, N., & Shakibazadeh, E. (2020). School based interventions for promoting food and nutrition literacy (FNLIT) in elementary school children: A systematic review protocol. *Systematic Reviews, 9,* 87-87. https://doi.org/10.1186/s13643-020-01339-0

Follong, B.M., Prieto-Rodriguez, E., Miller, A., Collins, C.E., & Bucher, T. (2020). Integrating nutrition into the mathematics curriculum in Australia primary schools: Protocol for randomised controlled trial. *Nutrition Journal, 19*(1). http://dx.doi.org.csumb.idm.oclc.org/10.1186/s12937-020-00640-x

Hinde, E.R., & Perry, N. (2007). Elementary teacher's application of Jean Piaget's theories of cognitive development during social studies curriculum debates in Arizona. *The Elementary School Journal, 108* (1), 63-79. https://doi-org.csumb.idm.oclc.org/10.1086/522386

McLeod, S., Carraway-Stage, V., Hovland, J., & Duffrin, M. (2012). Measuring me: Using nutrition education curriculum activities to teach elementary mathematics. *Journal of Nutrition Education and Behavior, 44,* 189-191. https://doi.org/10.1016/j.jneb.2011.08.007

Paus, T. (2010). A primer for brain imaging: A tool for evidence-based studies of Nutrition? *Nutrition Reviews, 68,* 29-37. https://doi.org/10.1111/j.1753-4887.2010.00327.x

Pierson, S., Goto, K., Giampaoli, J., Hart, S., Wylie, A. (2019). Impacts of a mindful eating intervention on healthy food-related behaviors and mindful eating practices among elementary school children: *A pilot study. California Journal of Health Promotion, 17*(2), 41-50. https://doi.org/10.32398/cjhp.v17i2.2288

Sharmat, M. (2009). *Gregory, the terrible eater*. Simon & Schuster.

Toussaint, N., Streppel, M.T., Mul, S., Schreurs, A., Balledux, M., Van Drogelen, K., Janssen, M., Fukkink, R.G., & Weijs, P.J. (2019). A preschool-based intervention for early childhood education and care (ECEC) teachers in promoting healthy eating and physical activity in toddlers: Study protocol of the cluster randomised controlled trial preschool @ healthyweight. *BMC Public Health, 19*(1). http://dx.doi.org.csumb.idm.oclc.org/10.1186/s12889-019-6611-x

Table 1

Table of the number of participants to guess if healthy snack or sometimes snack

Snacks	**Number of Participants**
Apple	8/8 participants
String Cheese	7/8 participants
Blueberry Muffin	6/8 participants
Pizza Rolls	8/8 participants
Skittles	8/8 participants
Pretzels	7/8 participants
Tortilla Chips	8/8 participants
Popcorn	1/8 participants
Chicken Nuggets	8/8 participants
Bagel and Cream Cheese	7/8 participants

Table 2

Table of participants and ability to create a healthy plate

Participants	**Healthy Plate**
Participant 1	Yes
Participant 2	Yes
Participant 3	Yes
Participant 4	No
Participant 5	Yes
Participant 6	Yes
Participant 7	Yes
Participant 8	Yes

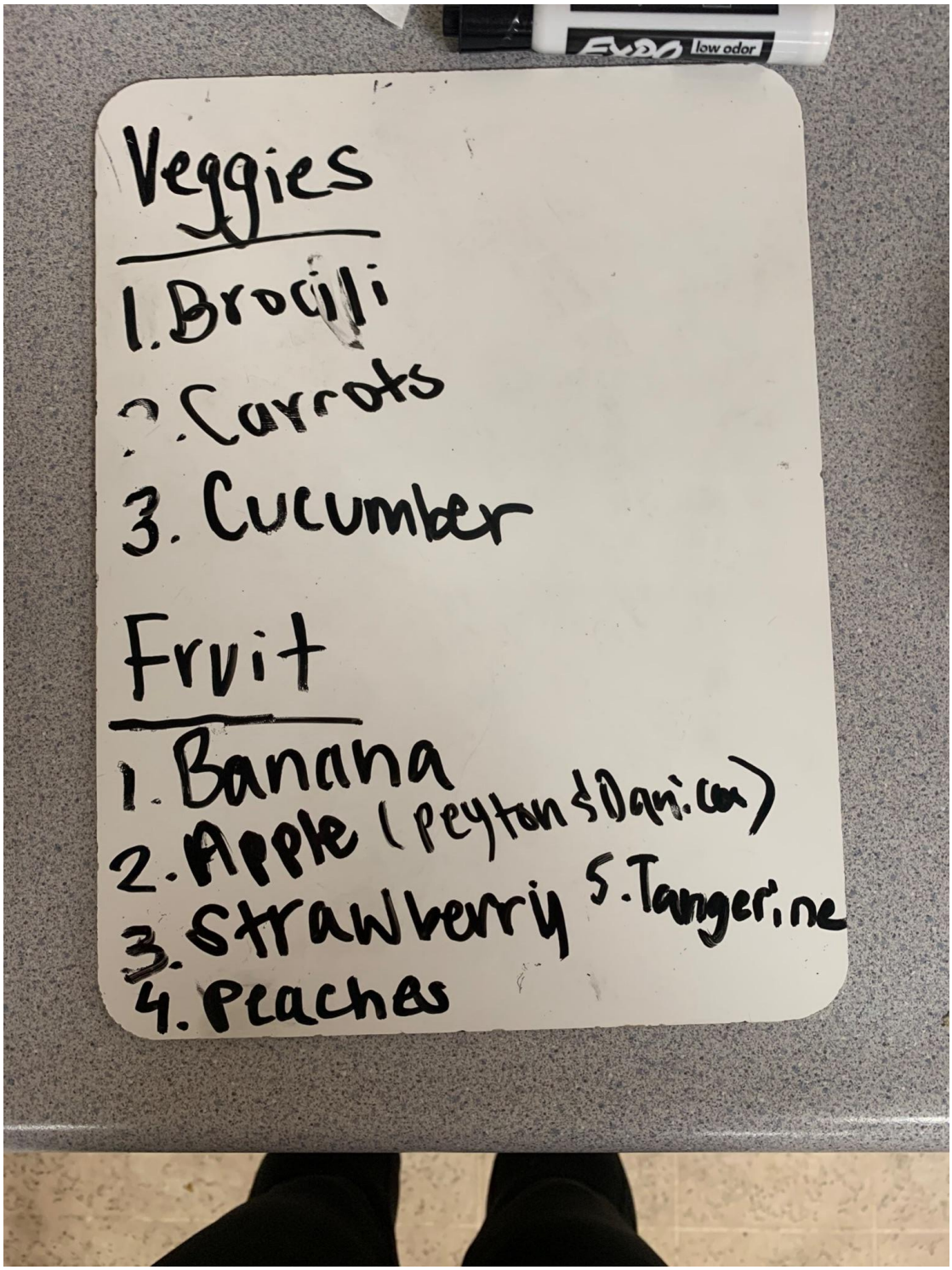
Table 3

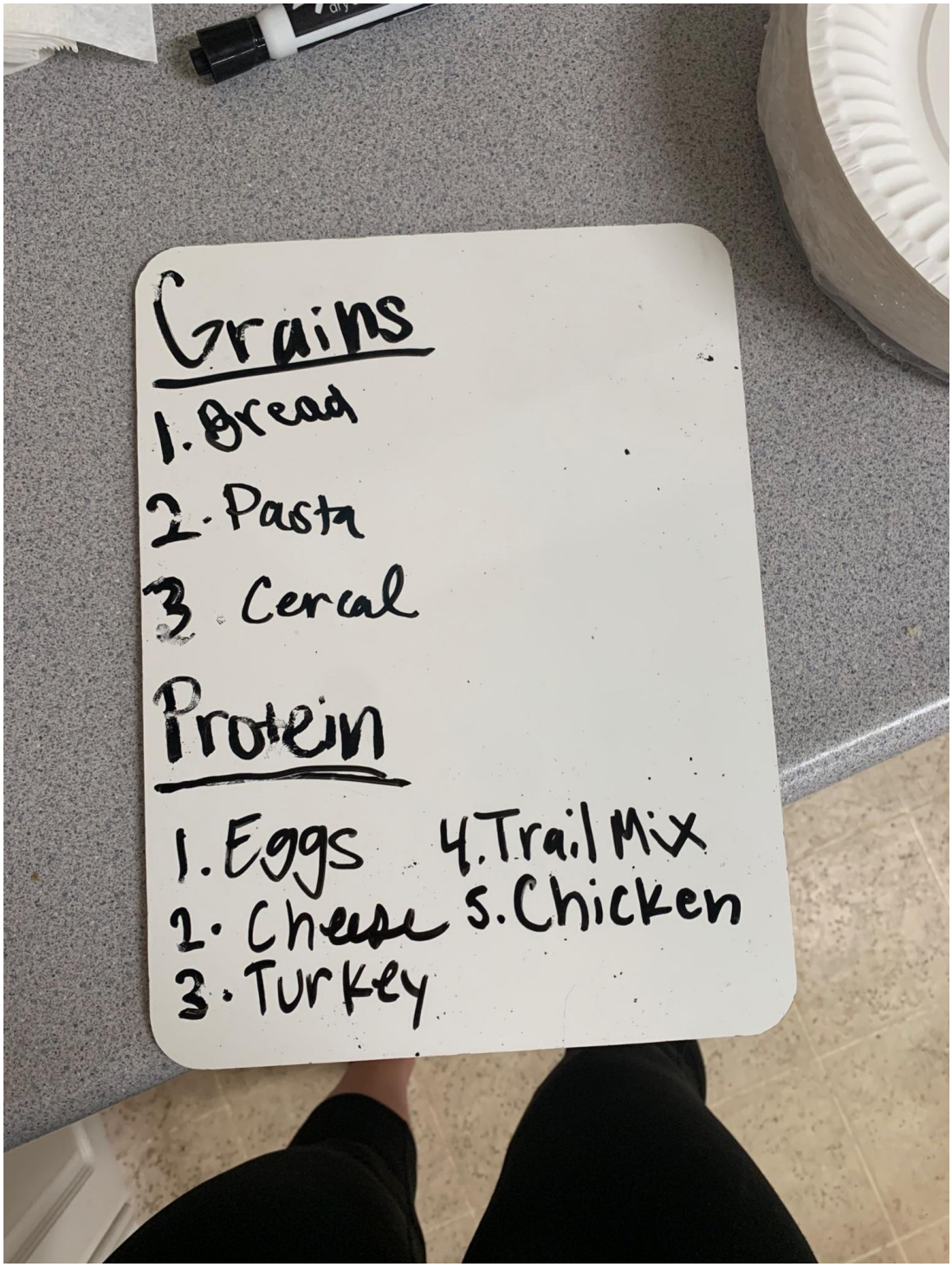
Table of participants and ability to create a healthy grocery list

Participants	**Healthy Grocery List**
Participant 1	Yes
Participant 2	Yes
Participant 3	Yes
Participant 4	Yes
Participant 5	Yes
Participant 6	Yes
Participant 7	Yes
Participant 8	Yes

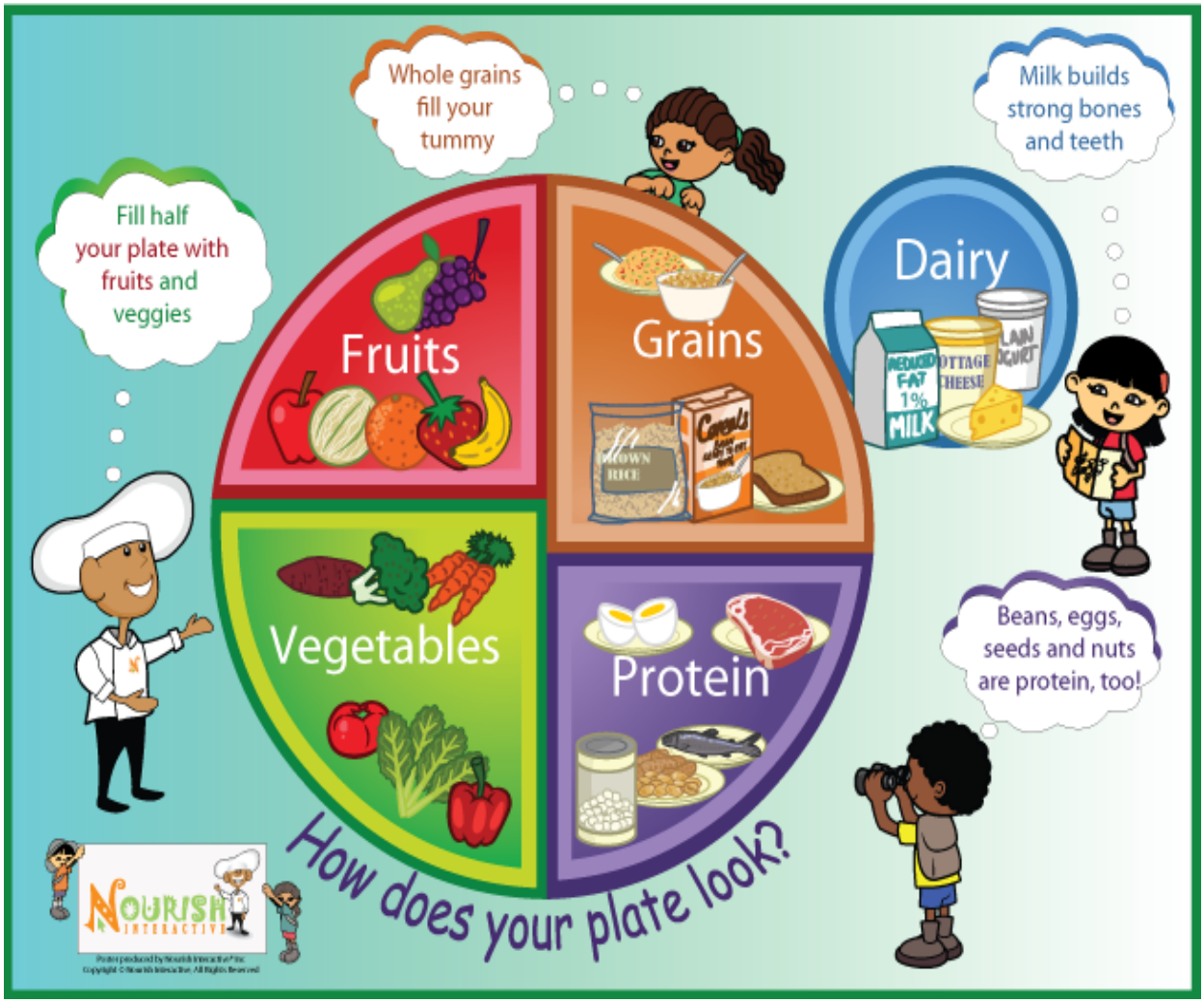
Appendix A

Appendix B

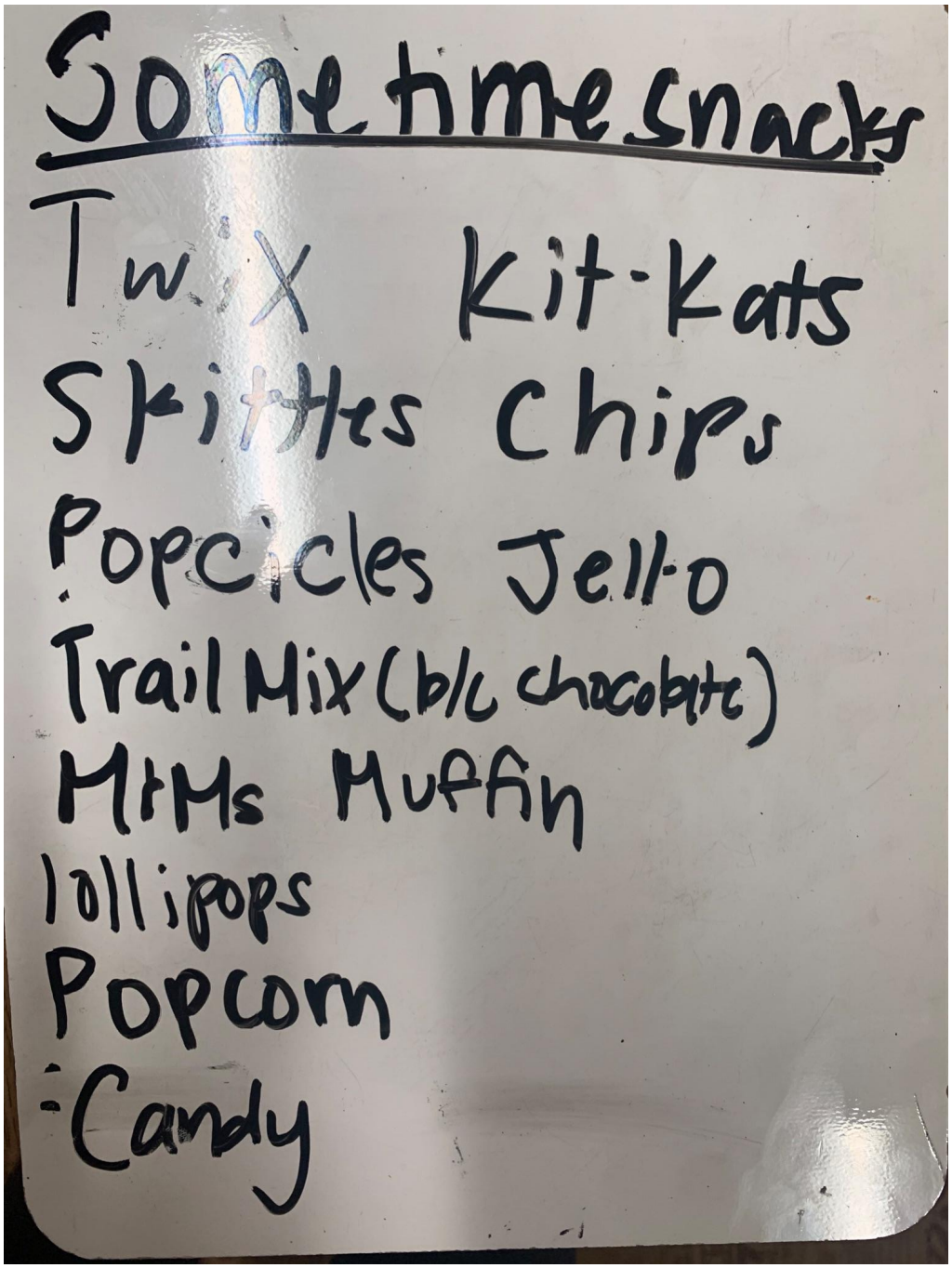

low odor
Veggies
1. Broccli
2. Carrots
3. Cucumber
Fruit
1. Banana
2. Apple (peyton$Dani.com)
3. Strawberry
4. Peaches
5. Tangerine


Grains
1. Bread
2. Pasta
3 Cereal
Protein
1. Eggs
2. Cheese
3. Turkey
4. Trail Mix
5. Chicken

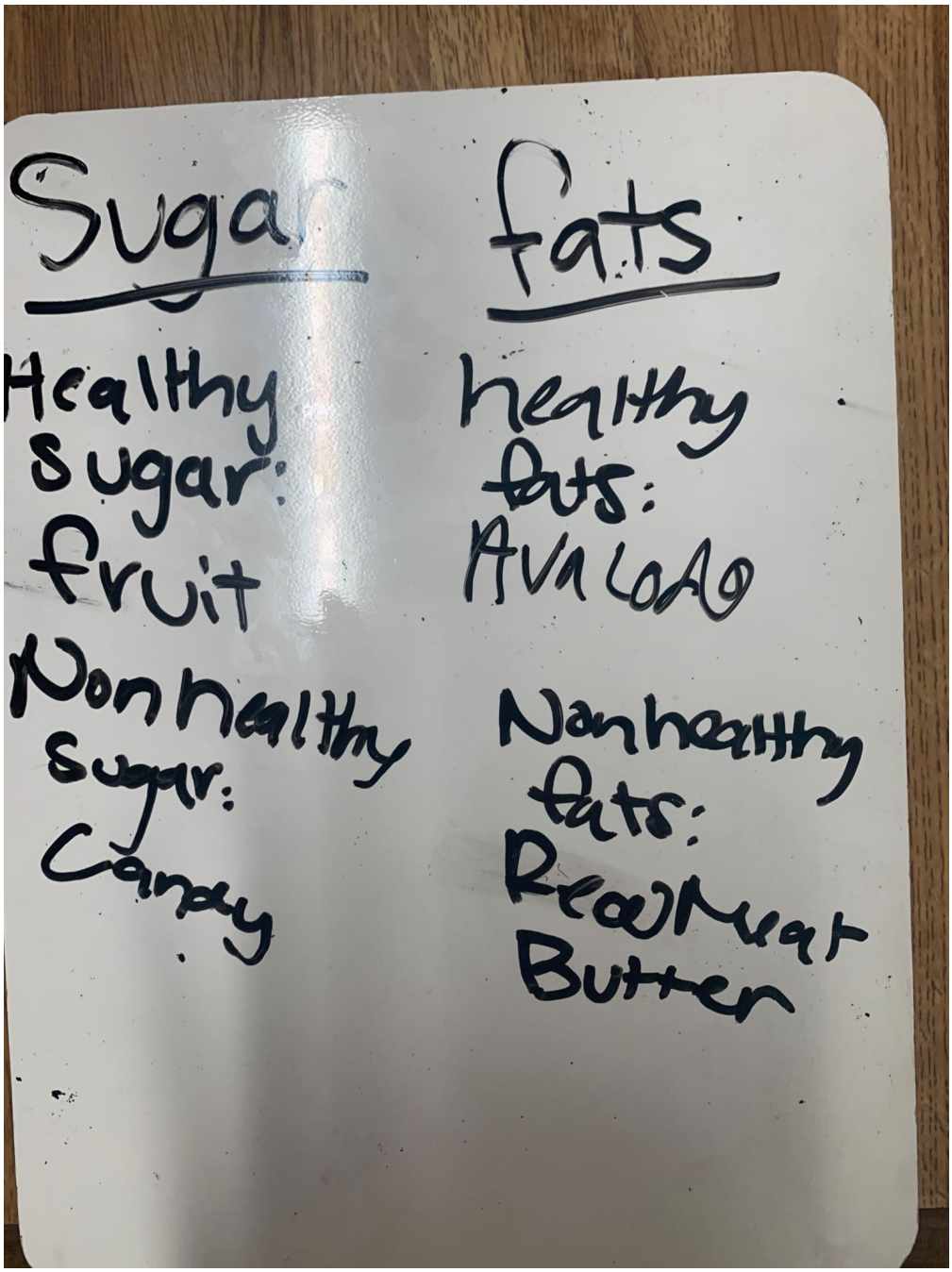
Appendix C


Whole grains fill your tummy
Milk builds strong bones and teeth
Fill half your plate with fruits and veggies
Fruits
Grains
Dairy
Vegetables
Protein
Beans, eggs, seeds and nuts are protein, too!
How does your plate look?
NOURISH INTERACTIVE

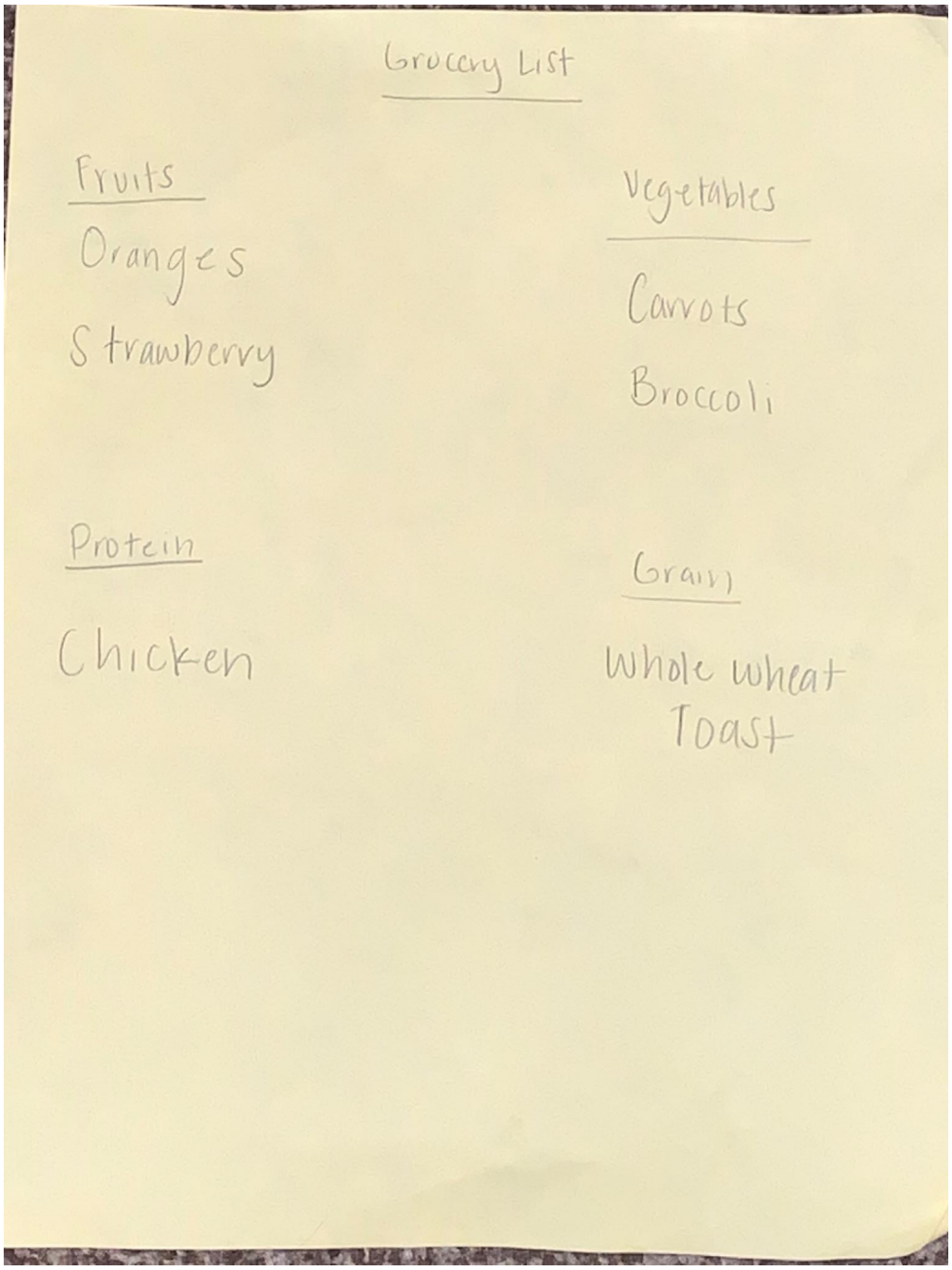
Appendix D


Sometime snacks
Twix
Kit-Kats
Skittles
Chips
Popcicles
Jell-O
Trail Mix (b/c chocolate)
MtMs
Muffin
lollipops
Popcorn
Candy

Appendix E


Sugar
fats
Healthy Sugar:
fruit
Non Healthy Sugar:
Candy
healthy fats:
AVACADO
Nonhealthy fats:
Red Meat
Butter

Appendix F


Grocery List
Fruits
Oranges
Strawberry
Vegetables
Carrots
Broccoli
Protein
Chicken
Grain
Whole wheat
Toast