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## The Development and Implementation of "Mission Nutrition": An After-School Nutrition Education Program for Youth Grades Kindergarten through Fifth

Rachel Maloy

*University of Nebraska - Lincoln*

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The Development and Implementation of “Mission Nutrition”: An After-School Nutrition  
Education Program for Youth Grades Kindergarten through Fifth

An Undergraduate Honors Thesis  
Submitted in Partial Fulfillment of  
University Honors Program Requirements  
University of Nebraska-Lincoln

By  
Rachel Maloy,  
Bachelors of Science  
Nutrition and Dietetics  
College of Education and Human Sciences

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Linda Young, MS, RD, LMNT  
Department of Nutrition and Health Sciences

## **Abstract**

Childhood overweight, obesity, and food insecurity are serious problems that are especially prevalent in low-income areas. Belmont Elementary School serves many children from low-income households (classified as a Title I school with 82.6% of students receiving free or reduced-price lunch) and, thus, was a perfect setting for the birth of an original nutrition curriculum.

A six-week after-school nutrition education program called “Mission Nutrition” was developed and implemented at Belmont Elementary School over the course of three and a half years. While originally designed for third through fifth grade students, the program was adapted for kindergarten, first, and second grade students as well. Using qualitative and quantitative feedback, Mission Nutrition was evaluated and modified to adapt to students’ interests and abilities. Although no direct feedback was acquired regarding knowledge gained, self-reports of changes in eating practices were analyzed. It was found that approximately 45% of participants stated they, or their family, changed their eating habits because of information learned in Mission Nutrition.

In this Honors Thesis, the process of creation, application, and evaluation of nutrition curricula are described for two age groups: kindergarten through second grade and third through fifth grade.

**Key words:** Nutrition, Education, Youth, Elementary School, Health

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## Introduction

I chose to enter the field of nutrition because I wanted to make a difference in people's lives. When I was a freshman at the University of Nebraska-Lincoln, I saw an opportunity to do just that. In the fall of 2015, I started volunteering once a week in an after-school club at Belmont Elementary School called "Naturally Nutritious" (run by an upperclassman dietetics student) that taught kindergarteners and first-graders about food and health. At the end of the quarter, she offered to turn the club over to me; I graciously accepted. Shortly after, I decided to rename the club "Mission Nutrition" and work with older students. I made these changes because

- a) I felt the name Mission Nutrition would better represent what I envisioned the club to be and
- b) I thought fourth- and fifth-graders would be more receptive to a new curriculum, helping me develop the program with more insightful feedback.

While the person who ran the club originally had some great ideas, there was no organized curriculum. Thus, I created structured lessons that divided the information into sections to be covered each week. The club was offered during each of the school calendar quarters and the length of the club would vary between 5-7 weeks. I organized the curriculum into 6 fifty-minute lessons. During the five-week quarters, I skipped the last week of lessons and during the seven-week quarter, I tried out new games and activities with the children (there was only one seven-week quarter during the time Mission Nutrition was held).

For my first quarter of directing Mission Nutrition, I taught students in Belmont Recreation Center's after-school program. This was challenging because I had no volunteers to assist me and the children in the program did not elect to participate (as they would have in after-school clubs). The students resisted engaging in the discussions and preferred to fool around and talk amongst themselves. In addition, I struggled to juggle teaching and performing other

necessary duties (e.g., passing out papers, writing on the whiteboard, etc.). Thus, I decided that I needed to recruit other volunteers. I reached out to people in my nutrition classes and through UNL's Nutrition and Health Promotion club. After a couple of weeks, I was able to find two volunteers who helped immensely. I also decided that I needed incentives for the children to participate. Using my own money, I purchased prizes (such as stickers, bubbles, and toys that encourage physical activity) and started looking for a way to provide a weekly snack.

After hearing a registered dietitian from Lincoln Public Schools speak in one of my nutrition courses, I approached her and asked if she had the resources to provide a snack for Mission Nutrition every week. She agreed to find the funds and drop off snacks every week and did so for the remainder of the school year. Providing the children snacks resulted in the students being happier and more willing to engage.

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In my thesis prospectus, I planned to prepare this thesis only in regards to the adaptation of the third through fifth grade curriculum for kindergartners, first-, and second-graders, but that would not have told the whole story. Originally, Mission Nutrition was designed for older students. This part of its history is vital to understanding how everything came together.

In addition, in my thesis prospectus, I envisioned a website dedicated to spreading the Mission Nutrition program. Although I began putting together a website, I found that the process was extremely time-consuming and laborious. I decided that my time would be better spent on writing and revising this thesis—especially since the website would not be available to the public unless I paid for a URL. I will revisit the idea of creating a website in the future when I have more time and money.

## **Program Overview**

### **Objectives**

The overall vision of Mission Nutrition was to improve the eating habits and physical activity patterns among elementary-aged children and their families. To achieve this goal, the following objectives were identified:

- ❖ Teach children about food groups, portion sizes, daily recommendations, and nutrients.
- ❖ Encourage children to participate in healthy lifestyle practices.
- ❖ Reach parents through clear, concise, and family-friendly handouts.

### **Target Audience**

The target audience was Belmont Elementary School kindergarten through fifth grade students living in Belmont, a low-income neighborhood in Lincoln, NE. Belmont Elementary School is a Title I school that serves over 800 students and served free or reduced-price lunch to 82.6% of students in 2019 (“Breaking down,” 2019). This audience was selected with the hope of making the largest impact on the most vulnerable of children for as long as possible.

The benefit to this audience was increased knowledge of childhood nutrition and healthy living. Studies have shown that children of low-income households (especially those with food insecurity) are more likely to have a range of health problems, including both nutrition-related and behavior-related outcomes (Coleman-Jensen, McFall, & Nord, 2013). With a fun and engaging nutrition education curriculum, these students can learn how to live healthy lifestyles for years to come. The goal of Mission Nutrition was that this curriculum would help prevent childhood obesity and increase fruit, vegetable, and dairy consumption to prevent nutrient deficiencies.

### **Summary of Third through Fifth Grade Curriculum**

Mission Nutrition was originally designed for fourth and fifth grade students; later the program was expanded to include third-graders to recruit more students. The third through fifth grade Mission Nutrition curriculum was designed as a six-week program. Each lesson had its own objective and included snacks and several activities (see Table 1). Complete lesson plans and all supplementary materials can be found in Appendix A.

### **Summary of Kindergarten through Second Grade Curriculum**

After several quarters of teaching third through fifth grade students, the curriculum was modified for younger children. The kindergarten through second grade Mission Nutrition curriculum was also designed as a six-week program. Each lesson had its own objective and included snacks and several activities (see Table 2). Complete lesson plans and all supplementary materials can be found in Appendix B.

Table 1: Summary of curriculum for third- through fifth-graders.

Lesson 1: Introduction to Food Groups	
Objective	To teach the students how the five food groups are classified, what kinds of food they include, and how much of each they should eat every day.
Activities	<ul style="list-style-type: none"> <li>- Introducing students and volunteers</li> <li>- Taste test</li> <li>- Discussion of the five food groups</li> <li>- Food BINGO!</li> </ul>
Lesson 2: Learning Portions	
Objective	To teach the students the recommended servings for each food group and what a serving looks like using common household objects.
Activities	<ul style="list-style-type: none"> <li>- Food group relay</li> <li>- Snack: fruit grahams</li> <li>- Food group review</li> <li>- Portion sizes discussion (matching household objects to portion sizes)</li> <li>- Five corners</li> </ul>
Lesson 3: Making Healthy Choices	
Objective	To teach the students the difference between healthy foods and “sometimes foods” using the “Green Light, Yellow Light, Red Light” model and how to apply this skill to real-life situations.
Activities	<ul style="list-style-type: none"> <li>- Snack: fruit kebabs</li> <li>- “Sugar Baggies” demonstration</li> <li>- Restaurant activity</li> </ul>
Lesson 4: Nutrients and Nutrition Labels	
Objective	To teach the students about macronutrients and micronutrients, as well as how to read nutrition labels.
Activities	<ul style="list-style-type: none"> <li>- Snack: smoothies</li> <li>- Macronutrient worksheet</li> <li>- Vitamins and minerals game</li> <li>- Nutrition label matching game (if there is time)</li> </ul>
Lesson 5: Exercise and Healthy Eating Habits	
Objective	To teach the students how to exercise properly, why exercise is important, and what eating habits are healthy (and unhealthy).
Activities	<ul style="list-style-type: none"> <li>- Exercising to music</li> <li>- Snack: hummus, veggies, and pita chips</li> <li>- Exercise discussion</li> <li>- Coloring “Healthy Eating Habits” posters</li> </ul>
Lesson 6: Review Day and Student Survey	
Objective	To review what we have learned over the last five weeks through a game of Jeopardy! and take a short survey.
Activities	<ul style="list-style-type: none"> <li>- Snack: oatmeal chocolate chip cookies</li> <li>- Jeopardy!</li> <li>- Student survey</li> </ul>

Table 2: Summary of curriculum for kindergarteners through second-graders.

Lesson 1: Introduction to Food Groups	
Objective	To teach the students how the five food groups are classified, what kinds of food they include, and how much of each they should eat every day.
Activities	<ul style="list-style-type: none"> <li>- Introducing students and volunteers</li> <li>- Snack: taste test</li> <li>- Discussion of the five food groups</li> <li>- Food BINGO!</li> </ul>
Lesson 2: Learning Portions	
Objective	To teach the students the recommended servings for each food group and what a serving looks like using common household objects.
Activities	<ul style="list-style-type: none"> <li>- Food group relay</li> <li>- Snack: fruity grahams</li> <li>- Food group review</li> <li>- Portion sizes discussion (matching household objects to portion sizes)</li> <li>- MyPlate word game (similar to “Hangman”)</li> </ul>
Lesson 3: MyPlate	
Objective	To teach the students what MyPlate is and how to use it.
Activities	<ul style="list-style-type: none"> <li>- Five corners</li> <li>- Snack: fruit kebabs</li> <li>- MyPlate discussion</li> <li>- MyPlate collage</li> </ul>
Lesson 4: Making Healthy Choices	
Objective	To teach the students the difference between healthy food and “sometimes foods” using the “Green Light, Yellow Light, Red Light” model and how to apply this skill to real-life situations.
Activities	<ul style="list-style-type: none"> <li>- “Red-light, green-light” game</li> <li>- Snack: fruit smoothies</li> <li>- Reading a book</li> <li>- Restaurant activity</li> </ul>
Lesson 5: Exercise and Healthy Eating Habits	
Objective	To teach the students how to exercise properly, why exercise is important, and what eating habits are healthy (and unhealthy).
Activities	<ul style="list-style-type: none"> <li>- Exercising to music</li> <li>- Snack: hummus, veggies, and pita chips</li> <li>- Exercise discussion</li> <li>- Coloring “Healthy Eating Habits” posters</li> </ul>
Lesson 6: Review Day and Student Survey	
Objective	To review the material from the last five weeks of club and learn what the students liked/disliked.
Activities	<ul style="list-style-type: none"> <li>- Snack: oatmeal chocolate chip cookies</li> <li>- Review game (using dice)</li> <li>- Group discussion</li> </ul>

## Literature Review

### Prevalence and Consequences of Childhood Overweight and Obesity

#### A. Prevalence of childhood obesity

Obesity in children is defined as a Body Mass Index (BMI) at or greater than the 95th percentile, as plotted on growth charts that are age- and gender-specific (Hales, Carrol, Fryar, & Ogden, 2017). The prevalence of childhood obesity has been growing steadily and significantly for many years. In the 1999-2000 National Health and Nutrition Examination Surveys (NHANES) data collection, the prevalence of obesity in children ages 2 to 19 years was 13.9%. In the 2015-2016 NHANES data collection (the most recently reported), the prevalence of obesity in children within the same age range was 18.5% (Hales et al., 2017). The Healthy People 2020 goal for the prevalence of obesity in youth is 14.5% which is 4 percentage points below the current prevalence.

Specifically, among elementary-aged children ages 6 to 11 years, the prevalence of childhood obesity is 18.4% (Hales et al., 2017). In the NHANES 2015-2016 data, there was no significant difference between male and female children in any age range. However, the data did show differences by ethnicity. Non-Hispanic black and Hispanic youth were more likely to have obesity, with a prevalence of 22.0% and 25.8%, respectively. In contrast, non-Hispanic white and non-Hispanic Asian youth had an obesity prevalence of 14.1% and 11.0%, respectively (Hales et al., 2017).

In 2018, the Centers for Disease Control and Prevention (CDC) published a report that described the connection between poverty and childhood obesity (Ogden et al., 2018). Data from the 2011-2014 NHANES found that 18.9% of children aged 2 to 19 years whose household income was less than or equal to 130% of the poverty level had obesity. In comparison, 19.9% of



children had obesity in households whose income was between 130% and 350% of the poverty level (which was not considered statistically significant). However, 10.9% of children whose household income was greater than 350% had obesity, which, when compared to the lowest income group, was significant (Ogden et al., 2018). Although nutrition education and obesity prevention programs should be aimed at all genders, races, ethnicities, and income levels, this data is useful in determining which populations are the most susceptible to obesity. Focusing efforts on low-income Hispanic and non-Hispanic black children, may have the largest impact. However, to lower the rate of childhood obesity, we must understand the factors contributing to the problem.

### **B. Factors contributing to childhood obesity**

Obesity in children has a strong genetic link—children whose biological parents have overweight or obesity are significantly more likely to have overweight or obesity themselves. Metabolic rate (how efficiently the body utilizes energy from food) varies greatly from person to person, which affects how much energy is stored as fat (CDC, 2016). In addition, neighborhood and community design can affect food availability and ability to participate in physical activity. Childhood events such as the death of a close family member, parental divorce, or abuse (anything that causes great stress for a child) can also affect children's weight.

Other important factors include eating habits, physical activity levels, and sleep duration (CDC, 2016). These three factors are those that can best be controlled. Teaching children about healthy eating patterns, encouraging them to be physically active, and promoting adequate sleep can lessen their risk of childhood obesity as well as the implications it has (Cole, Waldrop, D'Auria, & Garner, 2016).

### **C. Consequences of childhood obesity**

According to the CDC (2018), there are several health problems associated with childhood obesity, to include both immediate and long-term health risks. Immediate concerns include elevated blood pressure and high blood cholesterol levels, which can lead to cardiovascular disease. Breathing problems (including sleep apnea and asthma) are connected to childhood obesity along with joint discomfort, heartburn, gallstones, and fatty liver disease. Children with obesity often develop glucose tolerance, insulin resistance, and type II diabetes (CDC, 2018).

In addition to physical problems, children who have obesity often have psychological and social issues as well. Mental health conditions such as depression and anxiety are associated with childhood obesity. Children with obesity also commonly report poorer quality of life and low self-esteem. They are more likely to be bullied and tend to face social stigma of overweight and obesity (CDC, 2018). These problems can last for a child's entire life and often worsen if the child does not reach a normal weight.

Many of these immediate physical and psychological health problems can develop in childhood or adulthood. Children with obesity are more likely to have adulthood obesity. Adults with obesity are at higher risk for heart disease, cancer, and type II diabetes. These comorbidities are often life-threatening and lower people's quality of life. By preventing or reversing childhood obesity, people's lives and life span can be improved (CDC, 2018).

### **Nutrition Status Among Food Insecure Populations in the United States**

Another threat to the well-being of American children is food insecurity. The United States Department of Agriculture (USDA) separates food insecurity into two groups: low food security and very low food security. The USDA defines low food security as "Reports of reduced

quality, variety, or desirability of diet. Little or no indication of reduced food intake” and defines very low food security as “Reports of multiple indications of disrupted eating patterns and reduced food intake” (USDA, 2019). It is estimated that in 2011 approximately 21% of households with children had some degree of food insecurity within the last year (Coleman-Jensen et al., 2013). Overall, 10% of children themselves were food insecure and 1% of children had very low food security.

Research results have been inconsistent regarding the connection between food insecurity and childhood obesity (Kaur, Lamb, & Ogden, 2015). This may be due to inconsistent definitions of food insecurity and the differentiation between food insecurity of any child in the household versus a child being personally food insecure. When investigating the connection between childhood obesity and personal food insecurity, a significant positive association was found in a study published in the Journal of the Academy of Nutrition and Dietetics; although, this result was only true in children ages 6 to 11 years (Kaur et al., 2015). Without further research using personal food insecurity as the primary measure, conclusions cannot be made regarding the association between childhood obesity and food insecurity.

In 2013, the USDA published a report detailing the prevalence, severity, and household characteristics of food insecurity among families with children (Coleman-Jensen et al.). The research summarized in the report showed correlations between food insecurity and numerous health concerns. The outcomes for children living with food insecurity include:

- ❖ Greater risk of iron deficiency anemia
- ❖ Higher prevalence of headaches, colds, and stomach aches
- ❖ Increased risk of hospitalization
- ❖ Poorer psychological function and development

- ❖ Increased prevalence of depression and anxiety
- ❖ Lower math and reading scores as well as progression in these topics throughout grades

As this list suggests, the effects of food insecurity on children are significant. The health problems associated with food insecurity could lead to increased medical costs; the learning and behavioral problems associated with food insecurity could cause disruptions in education, leading to lower educational achievement. Both of these implications could further widen the socioeconomic gap and, thus, become a vicious cycle: food insecurity leading to health and education problems, leading to increased risk of poverty, leading to more food insecurity.

Government nutrition education services such as the Expanded Food and Nutrition Education Program (EFNEP) or the Supplemental Nutrition Assistance Program-Education (SNAP-Ed) aim to improve food security by providing nutrition education to low-income households. Both of these programs have been shown to be effective in decreasing food insecurity by teaching people about nutrition, food safety, and food resource management (National Institute of Food and Agriculture, 2016). Thus, nutrition education programs can have promising, lasting impacts on food security and nutritional status.

The majority of the children and families Mission Nutrition reached were low-income—in 2019, 82.6% of students at Belmont Elementary School received free or reduced-price lunch, compared to 45.9% over the district (“Breaking down,” 2019; Nebraska Department of Education, 2019). In 2016, 31.6% of US households with incomes below 185% of the poverty threshold (the cut-off for reduced-price lunch) experienced food insecurity (Coleman-Jensen, Rabbit, Gregory, & Singh, 2017). In comparison, 5.6% of households with incomes above 185% of the poverty line experienced food insecurity. Thus, children who receive free or reduced-price lunch are more likely to experience food insecurity. While Mission Nutrition did not specifically

address food insecurity, it focused on improving the nutritional status of students who likely lived in food insecure households.

### **Nutrition Education in Elementary Schools**

In the 2018-2019 school year, 16,700 students in 41 schools received nutrition education in Lincoln Public Schools through the Growing Healthy Kids School Enrichment Kit Program (SEKP; A. Havlovic, personal communication, October 16, 2019). The SEKP is a set of nutrition education curricula designed for elementary school students that was developed by SNAP-Ed Extension educators (Hall, Chai, & Albrecht, 2016). The curricula are separated into six grade levels and cover different topics depending on the age of the students. Overall, the main themes of the program are food safety, the five food groups, nutrients and nutrition labels, eating breakfast regularly, and the connection between physical activity and health. Most of the lessons are taught by the classroom teachers, but the first and final lessons are led by Extension educators (when pre- and post-tests are administered). The SEKP includes 6 lessons (plus an optional lesson) that are taught over the course of 3 weeks. In total, the program includes approximately ten hours of nutrition education per grade level.

The SEKP has proven to be effective in increasing students' knowledge of the five food groups and how to build complete, balanced meals (Vierregger et al., 2015). In addition, the students who participated in the program also showed improved nutrition-related behaviors (such as regular breakfast consumption and increased vegetable consumption) when compared to a control group.

At Belmont Elementary School, the SEKP has been implemented for 19 years, but only the kindergarten, first, and second grade curricula are being used (A. Havlovic, personal communication, October 16, 2019). The program is only implemented during the school day and,

besides independently-run clubs, Lincoln Public Schools does not currently offer any nutrition-related after-school programming at Belmont.

Much of the SEKP curricula is similar to that of Mission Nutrition, which is a strong advantage to the club. The overlap between the two programs reinforced the material, providing repetition and the opportunity for students to practice applying their nutrition knowledge.

Overall, the nutrition education curricula already employed in Lincoln Public Schools helped set Mission Nutrition up to be successful.

## **Development of Curriculum**

### **Initial stages: Third through Fifth Grade**

#### **A. Designing of curriculum**

As stated earlier, the original program had no structured curriculum. The curriculum design process started with identifying what was important and relevant to older elementary school students. The lessons focused on teaching the students how much to eat of the different food groups, how to tell which foods were the healthier options (especially at restaurants where they generally have more control of what to order), how to practice healthy eating habits (such as portioning out snacks and avoiding eating while watching TV), and how to incorporate exercise into their everyday lives.

Activities to convey nutrition concepts like food groups included the use of common games played in school such as BINGO!, four corners, relay races, and Jeopardy! Collages and coloring pages that fit the curriculum were also created. After accumulating all of these ideas, the materials were organized into lessons with common themes (see Table 1) and lesson plans were developed that included:

- ❖ Healthy snacks and discussion points during snack
- ❖ Fun and engaging food, nutrition, or exercise-related activities
- ❖ Guided discussions with major and minor talking points
- ❖ Parent handouts to engage and educate families at home
- ❖ A list of all materials needed

Because the third-, fourth-, and fifth-graders were more mature and had more developed reading, writing, arithmetic, and conceptual understanding skills than the younger students, relatively advanced activities were able to be incorporated. Activities that engaged and promoted these abilities included the comparison of sugar contents of different beverages, exploration of the characteristics of macro- and micronutrients, and a Jeopardy! review game.

#### **B. Choice of preliminary handouts**

Because of limited time and resources, pre-made handouts were sent home from sources such as ChooseMyPlate.gov, the Produce for Better Health Foundation, the FDA, the Dairy Council of California, and more. The goal of these handouts was to engage parents in learning more about healthful eating patterns and creating structured, pleasant mealtimes for their children. Included were several “10 Tips Nutrition Education Series” handouts (e.g., “Build Healthy Mealtime Habits” and “Cut Back on Your Kid’s Sweet Treats”) as well as infographics about nutrition labels, portion sizes, and the basics of MyPlate. Each handout was selected based on its relevance to the weekly lesson. For example, during the week in which we talked about the sugar content of different beverages, the handout from ChooseMyPlate.gov called “10 Tips: Make Better Beverage Choices” was utilized.

Each week every student was given a take-home activity sheet collected from sources such as Team Nutrition and the Produce for Better Health Foundation. These activities included

a crossword puzzle, coloring sheet, maze, and word search. If a student brought a completed worksheet back the following week, the child would receive a sticker. If a student brought back every worksheet during the quarter, the child received a bottle of bubbles. Eventually the activity sheets were removed from the curriculum because of limited interest from the students.

### **C. Revision of curriculum and development of formal lesson plans**

Using the responses from student surveys (see “Results” section), observations of content learned during the Jeopardy! review game, and real-time subjective assessments of the success of different activities, the curriculum was revised to better fit the interests and abilities of the students (see “Use of Results” section). The changes made to the discussions and activities (there were no changes made to the snacks) were implemented the following quarter. Small changes were made frequently (adjusting what questions were asked, how concepts were explained, and the rules of different activities) and the program gradually improved. The methodology utilized was trial and error; there was no other way to adapt the program to the specific needs of these students.

Initially, all of the weekly lessons were written in a rough, unpolished format adding more qualifiers and rules every quarter (as children are incredibly unexpected). Using a template found online, formal lesson plans were eventually created that included:

- ❖ A summary of the lesson with a subject, grade level, specific objective, and time allotment (always 50 minutes).
- ❖ An “Implementation” section including the learning context (assumptions of what the students already know) and procedure (step-by-step instructions with estimated durations).



- ❖ A list of instructional materials (such as the handout of the week or any supplemental documents) and resources (such as what is needed for snack or supplies for activities).

These lesson plans looked more professional and were easier to navigate. In addition, the process of transferring all of the content over to these new documents facilitated the evaluation of what information was truly necessary for the leader to understand what should be taught and how to do so in the most effective, efficient manner (maximizing information retained by students and minimizing negative behaviors or distractions).

The finalized lesson plans ended up being different from most formal lesson plans in that they are written using bullet points and incomplete sentences the majority of the time. This format allowed the leader to easily and quickly find specific sections and discussion points while carrying out the lesson. By breaking it down into short segments of information, transition times and pauses within the lessons were minimized (which are problem-causing areas when trying to keep elementary school students engaged and focused).

## **Final stages: Kindergarten through Second Grade**

### **A. Modifications in curriculum**

When Mission Nutrition began to be offered as a club for kindergarteners, first-, and second-graders, the curriculum needed to be adapted to their interests and developmental abilities. To do so, it was considered which activities and discussions required conceptual thinking (such as the functions of different nutrients), the ability to write (such as the student survey), or any arithmetic skills (such as the “Sugar Baggies” demonstration). The largest modification made for the younger students was the elimination of the “Nutrients and Nutrition Labels” lesson. This change was made because the concepts of macronutrients, vitamins, and minerals were too advanced for young children to understand.

Tables 1 and 2 outline the Mission Nutrition curriculum for third through fifth grade and kindergarten through second grade, respectively. When comparing these tables, one can see several differences in the lessons between the two age groups (although all of the snacks were kept the same). The modifications made were as follows, week-by-week:

1. The only modification in curriculum for the “Introduction to Food Groups” lesson was simplifying the food group discussion (e.g., removing the section on the five vegetable subgroups and omitting specific details about healthy foods within food groups such as lean protein or whole grains). The food group definitions and their recommended daily amounts were retained. The time not spent on discussion was added to the Food BINGO! game allotment.
2. The main change in the “Learning Portions” lesson was the movement of the “Five Corners” activity to the following week and its replacement with a “MyPlate Word Game.” This game was only used once, however, due to lack of time.
3. In the third through fifth grade curriculum, the “Making Healthy Choices” lesson occurs during week three. However, because the “Nutrients and Nutrition Labels” lesson in the kindergarten through second grade curriculum was eliminated, week three was dedicated to MyPlate. During this lesson, “Five Corners” was played and a MyPlate collage was completed (which had been used previously in the third through fifth grade curriculum). This lesson reinforced food groups and plate portioning.
4. For the kindergarteners through second-graders, week four’s lesson was about making healthy choices—similar to week three for the older grades. The largest change in this lesson was the elimination of the “Sugar Baggies” demonstration. This activity involved relatively advanced math (such as fractions and comparing larger and smaller amounts)

and would not have kept their interest. Instead, a “Red-light, green-light” game was included that foreshadowed the lesson. In addition, a children’s book was read to the children about healthy eating. The restaurant activity was retained because, although it was a bit difficult for some of the children to read the menus, it was a great opportunity to apply the concepts we learned to a real-life situation.

5. There were no modifications in the “Exercise and Eating Habits” lesson.
6. During the sixth week of Mission Nutrition, the third- through fifth-graders played Jeopardy! and took a written survey; the kindergarteners through second-graders also played a review game (although it used simpler questions and rolling dice) and gave feedback through a group discussion.

Although the modifications made needed minor adjusting after implementation (such as giving clearer, more direct instructions and changing time allotments), the majority of the new curriculum was well-received.

### **B. Designing of original handouts**

The handouts initially chosen were of high quality and contained useful information, however, they were not tailored to the curriculum nor did they specifically summarize what was discussed that week. In addition, it became expensive to print several different handouts every week. To remedy these problems, one parent handout specific to each week’s lesson was developed. These new handouts summarized the lesson of the week (e.g., food groups, nutrients, exercise, etc.) and often included supplemental information (e.g., healthy snack ideas, vegetable subgroups, healthy feeding practices, etc.). With the guidance of Linda Young, handouts were created that were concise and appropriate for the target audience with simple, relevant information.

## **Implementation**

### **Recruiting volunteers**

When initially starting Mission Nutrition, there were no volunteers to help teach, hand out materials, or work with children one-on-one. Using announcements in nutrition classes (both in-person and through the online portal), asking members of UNL's Nutrition and Health Promotion Association, and talking to friends and family, several volunteers were found. Throughout the course of Mission Nutrition, a total of seven volunteers helped regularly and three other volunteers helped once or twice.

After a volunteer participated for a full quarter, they were entrusted with leading lessons. To prepare them, the lesson plan was sent to them about a week in advance and encourage them to ask any questions they had. Before that week's meeting, the curriculum was reviewed with them and advice regarding how to approach different topics was also offered (e.g., working through a specific section slowly and asking children questions one at a time). Although volunteers sometimes struggled to keep the children engaged and work through the material efficiently at first, they normally improved after several lessons. This opportunity to encouraged them to step outside of their comfort zone and develop teaching skills. Most of the volunteers were in nutrition-related areas of study and these skills would help them in their future careers.

### **Family Events**

During fall 2018 and spring 2019, I attended several events called "Family Activity Night" as well as "Lights on Afterschool." During these events, activities were organized for children to play at the booth and handouts, recipes, and fruits or vegetables for families to try were offered.

At the Family Activity Nights, children had the opportunity to complete one of the following two activities: Mystery Foods or Food Dice. The Mystery Foods game involved children feeling plastic foods inside of a box, guessing what they were, and then sorting them into their food group. The Food Dice game required children to roll a paper dice, which could land on any of the five food groups or a “Sometimes Food” category. Once they rolled the dice and determined their category, they were instructed to point to pictures of foods that belonged in that category on a piece of paper with 42 pictures of different foods.

At the Lights on Afterschool event, a tri-fold display board was prepared with a description of Mission Nutrition and the weekly activities. Families had the opportunity to taste papaya as well as play a game where they were asked to match nutrition labels to the specific nutrient amounts. At this event, I was able to engage with several parents and children and spread the word about Mission Nutrition club at Belmont. Although the majority of the families that came were not from the Belmont area, parents expressed their interest in the club and how they wished their school had something similar. After the majority of families left, Lindsay Limbach (the current Family and Curriculum Specialist for Lincoln Public Schools who was an amazing supporter of the club) presented me with an award for being an “Outstanding Community Partner.”

There were two motivations for attending these events: a) to spread knowledge of nutrition and provide healthy recipes to parents and b) to generate more interest in the club. At the Family Activity Nights, parents were offered several different handouts from ChooseMyPlate.gov (and other trusted sources) and recipe cards that were normally sent home during Mission Nutrition for smoothies and “Fruity Grahams” (graham crackers topped with yogurt and fresh fruit). Many children took the activity sheets from the booth and even more

played the games offered. A sign displaying the name of the club was positioned behind the booth and a few families said they would enroll their children in the next quarter. Overall, attending these Family Activity Nights and the Lights on Afterschool event helped in achieving the goals of the club.

## **Results**

### **Estimation of Knowledge Gained**

While creating the curriculum for Mission Nutrition, it was important to see how much the students were learning. However, it was decided not to use pre- or post-quizzes because this would make the club seem too much like school for the children. Plus, many of the children in the younger age group were unable to read or write and this made quizzes impractical. Thus, instead of collecting quantitative data, children played a review game at the end of the program, during which what the children learned was observed. Although it was impractical to record exactly what the children learned using this method, it did provide an idea of the strongest parts of the curriculum and the areas that needed improvement.

### **Acquiring Student Feedback**

In addition to the review games, student feedback was gathered on the program. Feedback was collected related to what the children learned and what their favorite and least favorite parts of Mission Nutrition were (both in terms of activities and snacks). Students were asked whether they gave their parents the handouts that were sent home and if they or their family changed any of their eating habits because of the club.

When interpreting these results, it is important to keep in mind that some children did not answer every question and would occasionally give two answers to questions. Also, not all

children were able to give feedback due to absences or unwillingness. Because students often enrolled in the club more than once, some children were surveyed multiple times over the course of the program. Lastly, because some options were not selected by any student, the result charts may not represent all of the possible options.

### **A. Third through Fifth Grade Feedback**

When I began volunteering at Belmont Elementary School, I had no experience with formal nutrition education for young children. At that point, I also had very limited knowledge of nutrition and child development (as I was only a Freshman at UNL). In addition, there were very few nutrition-related games and activities to be found online—so I had to create my own. Thus, when I began designing the curriculum, I did not know how the students would react to the activities prepared. To determine which activities the children liked and did not like, the children were asked to complete a survey. The students' responses were recorded for every quarter Mission Nutrition was held and the proportions of responses are reported in Figures 1 through 6. The highest total recorded responses (from Question 3: "What was your favorite snack?") was 49.

Initially students were asked to fill out feedback surveys during the fifth week of Mission Nutrition. After several quarters, however, it was decided to change the point of survey to the sixth week (after the Jeopardy! game). Pushing the survey back a week allowed for more data collection regarding whether students enjoyed the activities and snacks from the sixth week. However, the data was not separated before and after this change—which is reflected in the lower numbers of students who responded that Jeopardy! or cookies were their favorite or least favorite activity or snack.

It is also important to keep in mind that the curriculum changed over the course of the program and some weeks there was not enough time to get through all of the activities. For example, the MyPlate collage was only used with the third- through fifth-graders for two quarters of Mission Nutrition, but its data is reflected in the charts for question 1 and 2. In addition, the nutrition label matching game was included in the lesson plan for several quarters, but we only ever had the time to complete it twice. Lastly, the portions matching worksheet was added towards the end of the program and, thus, had fewer responses in questions 1 and 2.



Figure 1. Results from Question 1, 3-5 (n = 37).

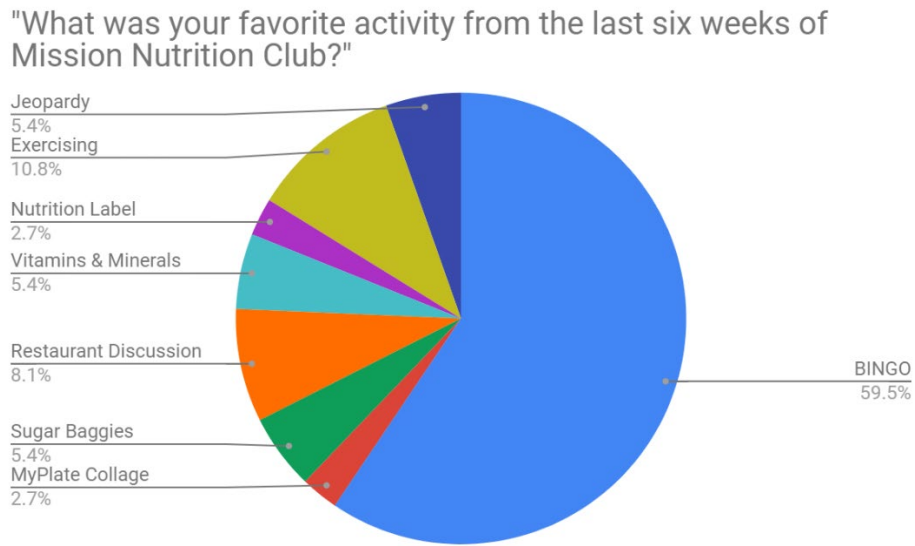


Figure 2. Results from Question 2, 3-5 (n = 23).

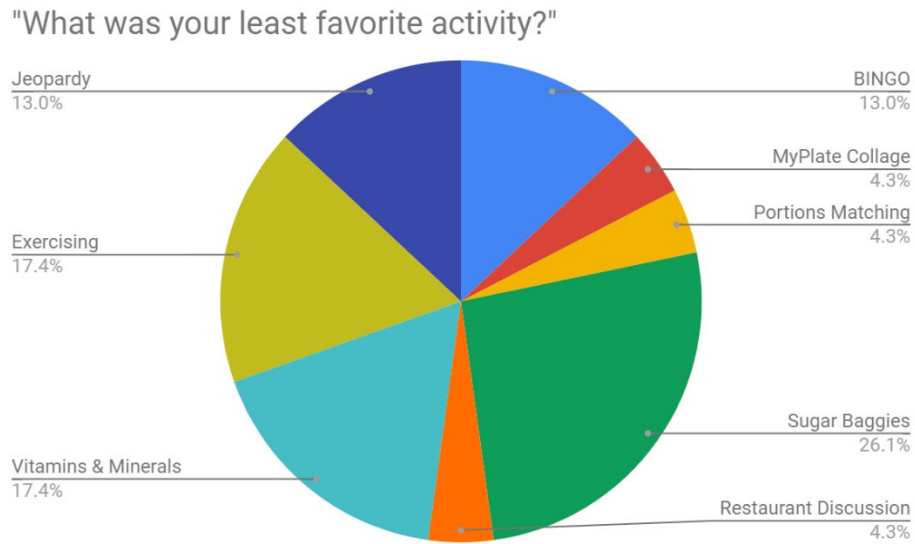


Figure 3. Results from Question 3, 3-5 (n = 49).

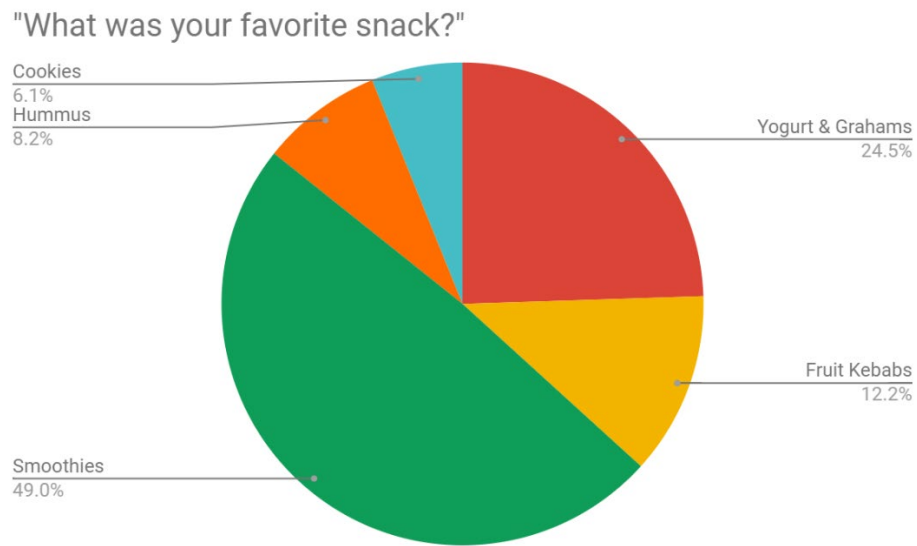


Figure 4. Results from Question 4, 3-5 (n = 37).

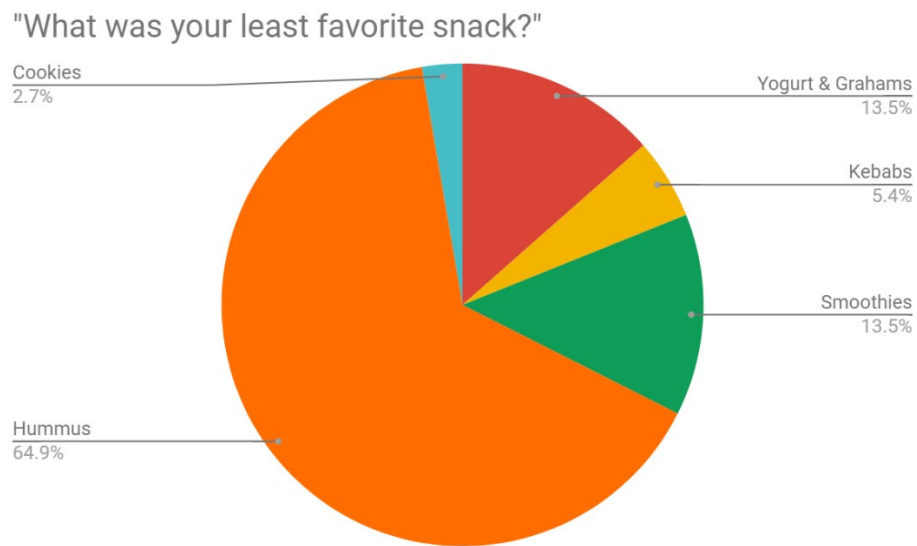


Figure 5. Results from Question 5, 3-5 (n = 42).

"Did you talk about what we did and learned in club with your parents and share the handouts with them?"

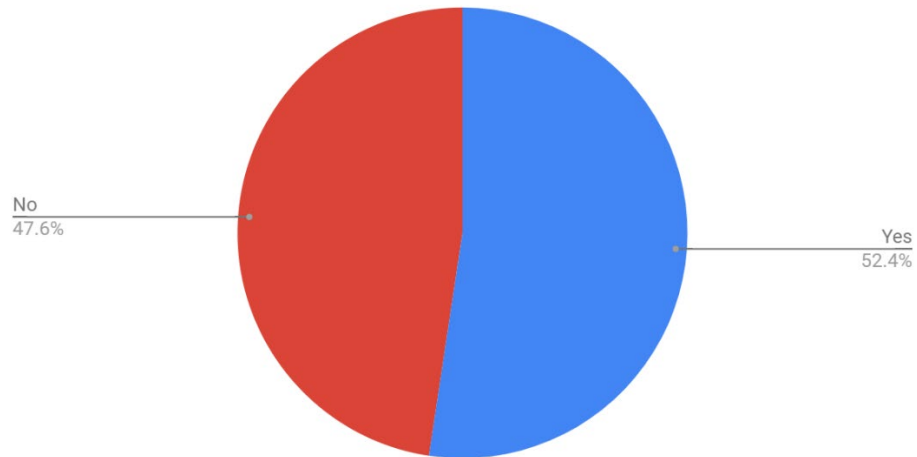
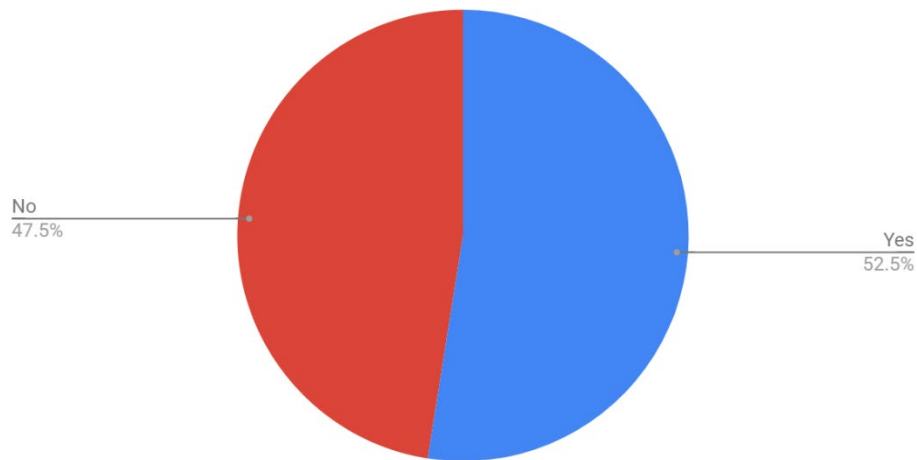


Figure 6. Results from Question 6, 3-5 (n = 40).

"Have you or your family changed any of your eating habits because of this club?"



## **B. Kindergarten through Second Grade Feedback**

Compared to the third, fourth, and fifth grade students, the younger children had less reliable reading and writing skills. Thus, written surveys were not an option. Instead, it was decided to lead a group discussion during the sixth week of Mission Nutrition (after the review game). For the first four questions (“What was your favorite/least favorite activity/snack?”), verbal lists were given for each of the activities and snacks from that quarter and the children were told to choose one by raising their hand. This method required frequent repetition of the options several times and reminding the children repeatedly to only choose one. Thus, the discussion sometimes took significantly longer than planned and occasionally it was not finished—which is reflected in the data. The proportions of students’ responses can be seen in Figures 7 through 12. The highest total recorded responses (from Question 1: “What was your favorite activity from the last six weeks of Mission Nutrition Club?”) was 23.

Figure 7. Results from Question 1, K-2 (n = 23).

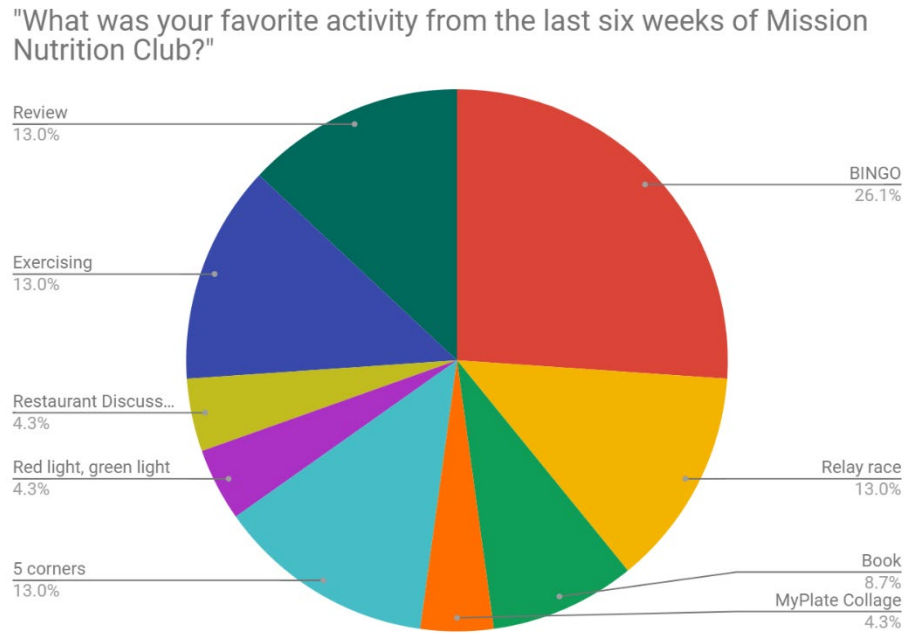


Figure 8. Results from Question 2, K-2 (n = 17).

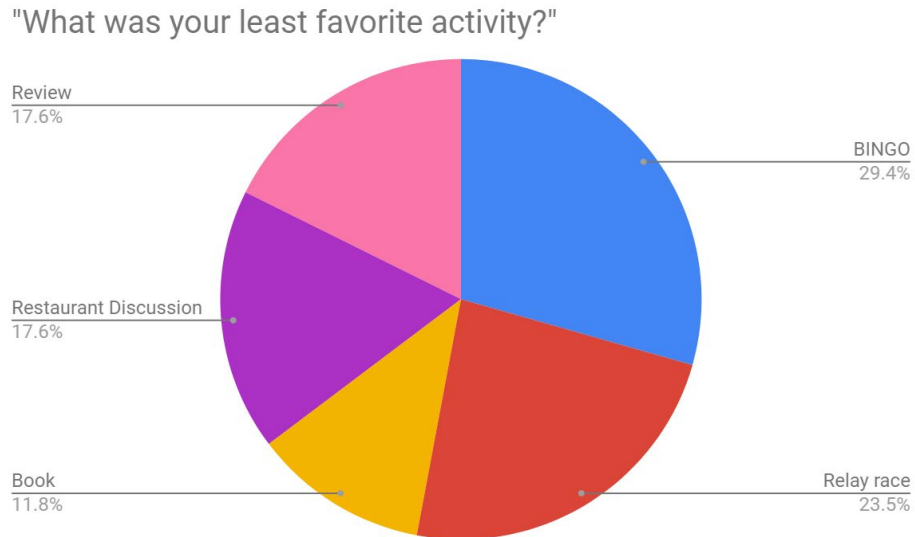


Figure 9. Results from Question 3, K-2 (n = 20).

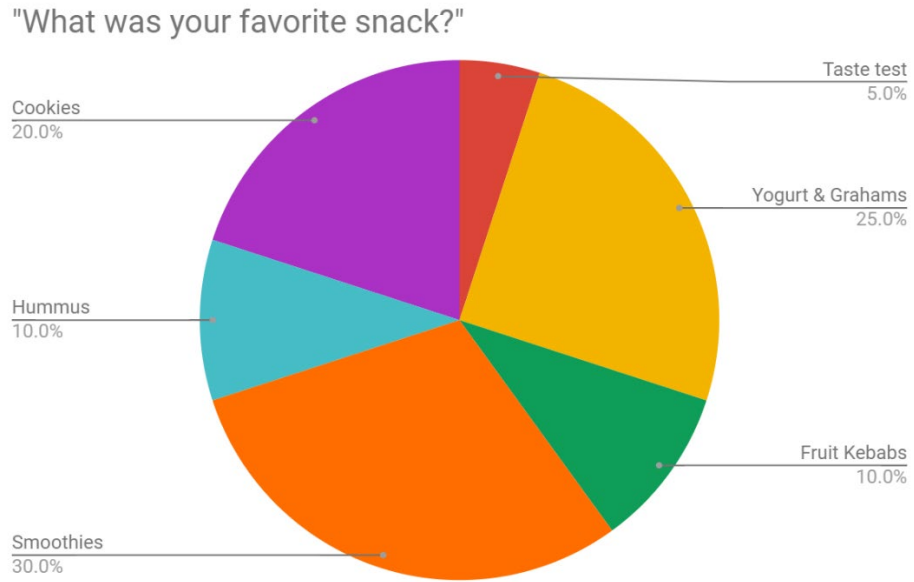


Figure 10. Results from Question 4, K-2 (n = 22).

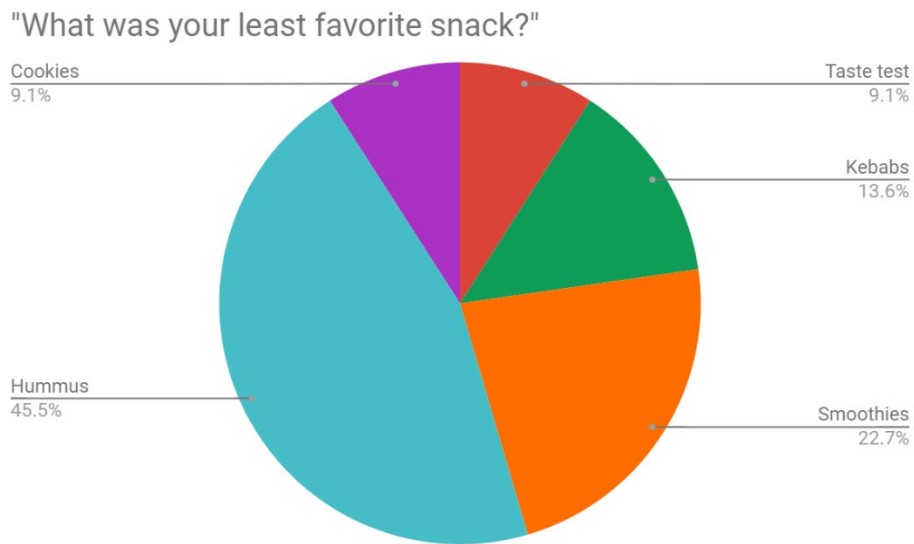


Figure 11. Results from Question 5, K-2 (n = 22).

"Did you talk about what we did and learned in club with your parents and share the handouts with them?"

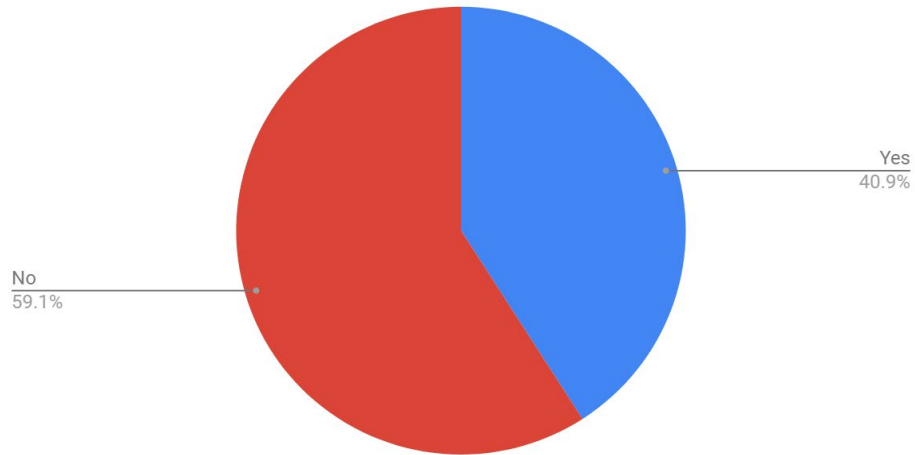
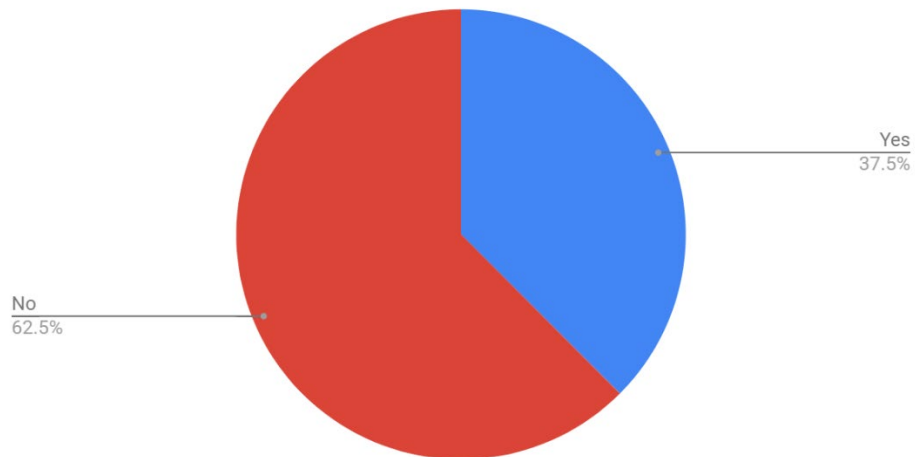


Figure 12. Results from Question 6, K-2 (n = 16).

"Have you or your family changed any of your eating habits because of this club?"



## Use of Results

Although very rarely were activities or snacks eliminated completely, some of the activities were modified based on student feedback and observation of their learning. For instance, the majority of the students chose Food BINGO! as their favorite activity, as seen in Figures 1 and 7. Using this feedback, the allotment of time for Food BINGO! was increased by simplifying the opening discussion. In addition, for the one seven-week quarter, a block of time was designated for Food BINGO! during the extra week. The curriculum was also modified based on students' performance in the final review game, Jeopardy! When the Jeopardy! questions were initially written, I was unsure of how to rank different questions based on their difficulty. Once the game was implemented and it clear which questions students struggled with, the questions were reordered or changed so that those with higher point value were truly more difficult for the students; for example, originally students were asked to list the five food groups as a 100-point questions but this was slightly too difficult for them and it was switched with the 200-point question. After playing Jeopardy! several times, an arrangement of questions was settled on that the students responded best to and the Jeopardy! review game was used as a way to learn what material was best retained by the students and which topics needed to be strengthened in the curriculum. For example, the students had trouble remembering how much to eat of the different food groups each day, so, instead of only discussing it during the "Learning Portions" lesson, these details were added to the "Introduction to Food Groups" lesson (and to the "MyPlate" lesson for the younger age group). Most of the changes made were minor modifications in the lesson plans (such as clarifying a confusing point or outlining areas to emphasize).



One of the more challenging activities for the third- through fifth-graders was the “Sugar Baggies” demonstration; 26.1% of students indicated that it was their least favorite activity, which was the most common response (as seen in Figure 2). I considered removing the demonstration from the curriculum, but I decided I would try to make it less complex first. Originally, the students would pass around the baggies and guess which bag of sugar corresponded to which drink and they were then told the correct answer. Later, the activity was revised to make it more interactive: each student (or student pair) was given a baggie to read and hold up for the rest of the group to see; after the other students made their guesses, the leader of that baggie was allowed to open an envelope and read the correct answer. The students seemed to enjoy this version of the activity more and were more engaged during the demonstration.

As seen in Figure 4, of the third- through fifth-graders who responded to the fourth survey question, 64.9% chose hummus as their least favorite snack from the quarter. Similarly, 45.5% of kindergarteners through second graders who responded in the group discussion reported that hummus was their least favorite snack (Figure 10). This result was expected when the snack was chosen; many of the students had never tried hummus before and, as children often do, they rejected it because it “looked gross.” However, it was decided to continue serving hummus, pita chips, and veggies during week five because it was an excellent opportunity to expose the students to new, healthy foods. Although there were always several children who did not want to taste the hummus (and we gave them the option not to), many of the students tried it and some of them liked it enough to have seconds.

As discussed earlier, a MyPlate collage was initially incorporated into the “Learning Portions” lesson of the third through fifth grade curriculum. After trying it for two quarters, it was decided to eliminate the collage because there was limited time for the activity and most of

the students were disinterested. Instead, MyPlate was briefly discussed (all of the students had already learned about MyPlate in school) and “Five Corners” was played instead.

In addition to asking the students for feedback on the curriculum, every quarter students were asked two questions that captured whether the main objectives were being met: if the children shared the handouts and materials with their parents and if their or their family’s eating habits changed because of Mission Nutrition (the responses from these questions are seen in Figures 5, 6, 11, and 12). About 50% of the third-, fourth-, and fifth-graders responded “Yes” to these questions while about 40% of the kindergartners, first-, and second-graders responded “Yes.” These results indicate that the older students were more likely to involve their parents in what they were learning and were more likely to apply what they learned in Mission Nutrition to their lives (although, because these items were self-reported, it is impossible to tell if this was truly the case). For an amateur nutrition education program, I consider a report of 40 to 50% of participants having changed their behavior a success.

## **Reflection**

### **Barriers Encountered**

#### **A. Finding Funds**

After one quarter of bringing snacks for the club, my connection (the registered dietitian) from Lincoln Public Schools left her job. I asked other dietitians in the school system and they told me they did not have the funds to help. Thus, for a few weeks, I paid for the snacks and other materials out-of-pocket. Lindsay Limbach (the Belmont Community Learning Center [CLC] director at the time) found money in her budget and bought snacks for Mission Nutrition. We later applied for grants from Lincoln Public Schools, Lincoln Parks and Recreation,

Partnership for Healthy Lincoln, and Lincoln Community Learning Centers. We received a grant that covered snacks and printing costs for a while, but I knew that we would need more money soon.

In the fall of 2017, I applied for the Engaging Race Award scholarship through the National Society of Collegiate Scholars. Applicants from across the country applied to fund their community service projects, detailing their target audience, perceived impact, plans to achieve their objectives, and budget. By the grace of the selection committee, I was selected to receive \$1,000 for Mission Nutrition as well as a \$1,000 personal scholarship along with three other applicants. Over the next year and a half, approximately \$460 of these funds were used to purchase snacks, prizes, printing materials, and miscellaneous supplies for the club and the rest of the money was donated to the Belmont CLC to support other after-school programs.

### **B. Recruitment of Students**

For the first few quarters of holding Mission Nutrition, 10 to 15 students were enrolled. However, at this point, the club was only offered to third, fourth, and fifth grade students and we were running out of children who were still interested. During the fifth quarter of holding the club, only one student signed up. The current Belmont CLC director, Laura Virgl, set us up to work with the children in the after-school recreation center program again. I promised the one fifth-grader who had signed up that she could be my helper and lead by example.

While this solved the problem in the short-term, long-term solutions were needed. Laura suggested that I try working with younger students again; I knew this would be a challenge because I would have to change a lot of the curriculum to fit a younger audience, however, I decided it would be worth it. From then on, I started alternating age groups (e.g., in the first and third quarters I taught third- through fifth-graders and in the second and fourth quarters I taught

kindergarteners through second-graders). In addition, I decided to start advertising the club by having the students color posters with healthy tips and “Join Mission Nutrition Club next quarter!” printed on the bottom. It seemed to work; later we had 20 students enroll in the club—more than ever before.

### **C. Managing Negative Behaviors**

As the Belmont CLC staff explained, the students at Belmont Elementary School often have limited structure in their home lives. Many of the students struggle with interpersonal relationships, have trouble regulating their emotions, and find it difficult to stay focused because of this. Belmont Elementary School developed several policies and guidelines to help their students overcome these problems. For example, the school encourages children to follow “The Belmont Way”: being safe, responsible, and respectful; using “Total And Perfect Silence” (TAPS) and “buckles” in the hallways; sitting on their “pockets”; and using “walking feet.” These policies extend to the after-school clubs as well.

Over the course of creating and directing Mission Nutrition, I attended several voluntary trainings on behavior management, saw the implementation of the “Volunteer and Community Partner Manual,” and wrote my own protocol summarizing what I had learned for the Mission Nutrition volunteers to follow. For example, we always referred to Mission Nutrition participants as “students” or “friends” rather than calling them “children” or “kids.” This policy did not only foster a respectful relationship between volunteer and student, but it helped the children build self-esteem. In addition, volunteers were encouraged to build relationships with the students—learn their names, ask about their lives, and treat them with respect—because this helped the children feel more connected to people and lowered the incidence of negative behaviors. When students struggled to follow The Belmont Way, two verbal warnings were given, and they were

removed from the situation and we “processed” with them one-on-one if the problem persisted. If necessary, we called the CLC director to help intervene. Occasionally, if this method did not work, the student would be suspended from the club (either for a week or permanently, depending on the severity of the behavior).

Towards the end of the program, I spent the majority of the meetings working through negative behaviors with children. This was due to an increased number of students enrolling in Mission Nutrition, working with younger children, and having the other volunteers lead the lessons. Although I was more skilled at navigating these situations than when I started volunteering, it was still extremely challenging for me. I found it difficult to juggle the several students who were acting out all at once and assist the other volunteers in leading the lessons. I consider this situation a significant barrier because it can negatively affect the success of a program. If a child or children are misbehaving and distracting all of the other students, none of them are learning or enjoying the program. Without effective behavior management techniques, a youth nutrition education program—or any education program—would be unsuccessful.

### **What I Would do Differently Next Time**

If I were to start Mission Nutrition all over again, there are a couple of aspects I would have done differently. Primarily, I would collect more concrete data. While I stand by my decision to not use pre- and post-quizzes, I believe the changes made in the program would have been more methodical if I would have documented the students’ responses during the review games. By recording and analyzing how frequently students responded correctly to each question, I would have been able to determine the exact strengths and weaknesses of the curriculum (rather than relying on memory). In addition, if I mapped the correct responses over

time, I could see whether the changes I made in the curriculum were actually improving the program. The main barriers to this idea were limited time, knowledge, and man-power.

Another aspect that I would have changed is to have kept a better record of enrollment over the course of the program. Although the number of responses from each question in the student surveys and feedback discussions were recorded, this was far from an accurate enrollment count. This is because we were unable to complete the surveys and discussions every quarter (due to short quarters or running out of time), students often answered questions with several responses or no response at all, students enrolled in the club several times, students were often absent from the club, and sometimes students refused to participate in the survey or discussion. By adding the two questions with the highest number of responses from each age group (49 and 23), I can roughly estimate that there were 72 students who enrolled in the club over the course of the program. However, because it was common that we missed surveys and discussions or students refused to answer the questions, I believe we reached far more students than the numbers reflect. Concrete enrollment data would have been very useful in determining the reach of Mission Nutrition.

There are also a couple of aspects of the curriculum that I felt were weak but never figured out how to improve them. For example, the “Green Light, Yellow Light, Red Light” model I used for differentiating between more and less healthy food was too abstract for young children. While many of the students had an idea of what “unhealthy” foods were, they found it difficult to distinguish between when a food was classified as “Yellow Light” versus “Red Light” (especially the younger students). I learned that elementary schoolers are black-and-white thinkers; they have trouble understanding what it means to eat certain foods “in moderation,” “sometimes,” or “on special occasions.” This is due to their limited ability to think conceptually

and, thus, the problem cannot be solved by explaining the topic differently. Because of this, if I were to redesign the curriculum, I would find an alternate activity for the “Making Healthy Choices” lesson.

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As I reflect on the curriculum as a whole, I am confident in what I created. I know I tried my best to not only teach the students about health and nutrition but provide a safe space where children could have fun and be themselves. Throughout the course of the program, several students gave me pictures they drew or crafts they made, but my most prized memento is a note a young girl wrote for me; it reads: “Dear Mission Nutrition, Your guys’s club is so fun and I have came to this club like 4 or 5 times. I love you guys. Keep on being healthy.” This note, along with all of the relationships I built with students and the stories they told me, helped me to keep pushing through, even on weeks when meetings were tough. I did not do any of this for myself or my career; it was all for the children. If I had even half of the positive effect on them as they did on me, I am satisfied.

Although the process of designing and implementing Mission Nutrition was very challenging for me, both intellectually and emotionally, I would do it again in a heartbeat. Creating a brand-new, original after-school club for elementary students was an amazing, invaluable experience for me personally and professionally. The students of Belmont Elementary School taught me how to be a better educator, health professional, and—most importantly—human being. I am very grateful (and lucky) to have had this opportunity and am confident that I will use every last drop of information I learned during it.

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## **Appendices**

- A. Third through Fifth Grade Curriculum**
- B. Kindergarten through Second Grade Curriculum**
- C. Family Activity Night Activities**

## Appendix A: Third through Fifth Grade Curriculum

# Mission Nutrition, Lesson Plan 1 (3rd-5th)

## Introduction to Food Groups

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### Summary

1. Subject: Food Groups
2. Grades: 3rd, 4th, and 5th
3. Objective: To teach the students how the five food groups are classified, what kinds of food they include, and how much of each they should eat every day.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. The students are likely to be familiar with the five food groups and what foods are included in each. While they may have heard of the recommended daily servings, it is unlikely that they have them memorized or understand what the different serving sizes look like (see Lesson 2).

#### Procedure

- a. Introductions (5 min)
  - Ask the students to share their names and their favorite foods. Start with yourself and the other volunteers.
- b. Taste Test (10 min, seconds can overlap with discussion)
  - Have 3-4 kinds of less common fruits and veggies (see “Resources” at the bottom) prepared and lined up buffet-style
    - Allow the students to take a certain amount of each
    - Ask them to wait to eat until we all can try them together
    - Encourage students to try the different foods, but do not force them to
  - Ask the students to share their experiences with each food (one at a time)
    - Ask about:
      - Texture (crisp, mushy, chewy, etc.)
      - Flavor (sour, sweet, savory, etc.)

- “Does this remind you of a different food?”
- c. Discussion (10-15 min)
  - Ask: “Who knows the five food groups?”
    - Write them on the board as the students answer
  - Food groups: write the recommended daily servings on the board. After describing each group, ask the students to share examples.
    - Fruits: 2 cups
      - Definition: “Sweet and fleshy product of a tree or other plant that contains a seed and can be eaten as food”
      - 100% fruit juice counts as a serving of fruit
    - Veggies: 2.5 cups
      - Definition: “Anything that is a root, stem, or leaf of a plant”
      - 5 veggie subgroups (write these on the board as well)
        - Dark-green: spinach, broccoli, kale
        - Red and orange: red peppers, carrots, pumpkins
        - Starchy: potatoes, corn
        - Beans and peas (legumes): black beans, split peas
        - Other: asparagus, cabbage, onions
      - Some foods are technically fruits, but are considered vegetables in nutrition
        - E.g., tomatoes, cucumbers, squash, peppers
    - Dairy: 3 cups
      - Definition: “Foods high in calcium; most are made from milk”
      - Should choose options low in added sugar (rather than ice cream and flavored milk)
      - Foods low in calcium but made from milk are NOT part of the dairy group (cream cheese, butter, sour cream)
    - Grains: 6 ounces
      - (1 slice bread = 1 oz)
      - Definition: “Wheat or any other cultivated cereal crop used as food”
      - Whole grains vs. refined grains
        - Refined grains have some parts removed to make it lighter and whiter
        - Half of the grains you eat should be whole grains
    - Protein: 5.5 ounces
      - Definition: “All foods made from meat, poultry, seafood, beans and peas, eggs, processed soy products, nuts, and seeds”

- Beans and peas are included in both the protein and vegetables food groups
  - Protein is actually a nutrient and is found in a lot of foods, even ones we don't consider in the protein food group (see Lesson 4)
  - It is best to eat lean or low-fat meat and seafood like pink salmon, chicken breasts, and lean ground beef
  - We should limit processed meats like ham, sausage, and hotdogs
- d. Food BINGO! (15-20 min)
- As volunteers pass out BINGO! sheets and beans, ask “Does anyone not know how to play BINGO?”
    - If anyone raises their hand, explain the rules:
      - “If you look at the papers we are passing out, you will see that there are five columns; each represents a different food group. I will draw pictures of foods that match the foods on your BINGO! sheet. As I call out the foods, you can find the picture of the matching food on your sheet and place a bean on top of it. Once you have place beans on five foods that line up (either left to right, up and down, or between the corners), you can call out “BINGO!” We will then come check your card and give you either a small container of bubbles or a sticker (if you have already won before). Not every food called will be on your sheet. The MyPlate icon in the center is a “free space” and you can go ahead and put a bean on that now. Does anyone have questions?”
  - Draw & call foods (show them the picture if they need it)
    - Consider asking students to shout out the food group that each food goes in as you call them
  - Repeat the game until time runs out, reminding students to clear their cards of beans between each game
- e. Clean-up (3 min)
- f. Closing (2 min)
- Have the students line up according to after school plan
  - Give them the handout of the week



## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - Copies of Food BINGO! sheets
    - And drawing cards
  - Handout of the week
- b. Resources:
  - Snack: 3-4 less common fruits and vegetables (already washed and cut up)
    - Kiwis
    - Multi-colored carrots
    - Sweet peppers
    - Pomegranates
    - Jicama (with ranch)
    - Special apples or pears
    - Mangoes
  - Plates and napkins
  - Food BINGO sheets & cards
  - Crayons
  - Beans (for covering BINGO! spaces)
  - Bubbles/stickers



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing Food Groups!

This week we learned about the 5 food groups, what they include, and how much to eat of each.



- Includes plant parts such as leaves, roots, and stems.
- Tomatoes, cucumbers, and squash are technically fruits, but are considered vegetables in nutrition.
- You should eat 2.5 cups every day!



- Includes plant parts that contain seeds.
- It is best to consume whole fruits, but 100% fruit juice is good too.
- Like all foods, it is best to get a wide variety of fruits.
- You should eat 2 cups every day!



- Includes whole grains and refined grains.
- Whole grain products include certain breads and cereals, popcorn, and brown rice.
- You should eat 6 ounces every day! (1 ounce = 1 slice of bread)
  - Make half of your grains whole grains.



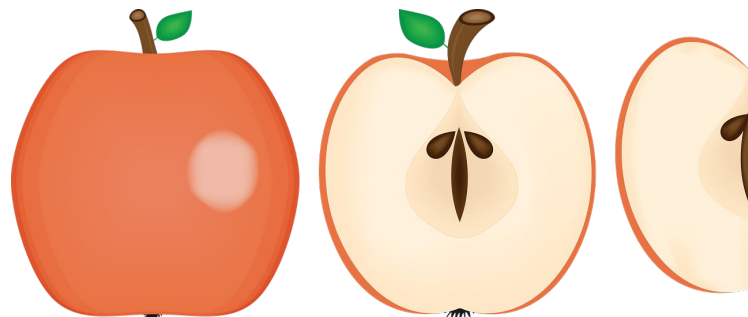
- Includes dairy products as well as soy milk.
- Sour cream, butter, and cream cheese have very little calcium and do not count towards daily servings.
- You should eat 3 cups every day!



- Includes animal products (besides milk) as well as beans and nuts.
  - Eggs are included in the protein group (not the dairy group).
- It is best to limit processed meats such as sausage, ham, and hot dogs.
- You should eat 5.5 ounces every day!
  - 3 ounces is the same size as 1 deck of cards

\*Recommended daily servings are based on a 2,000 Calorie diet.

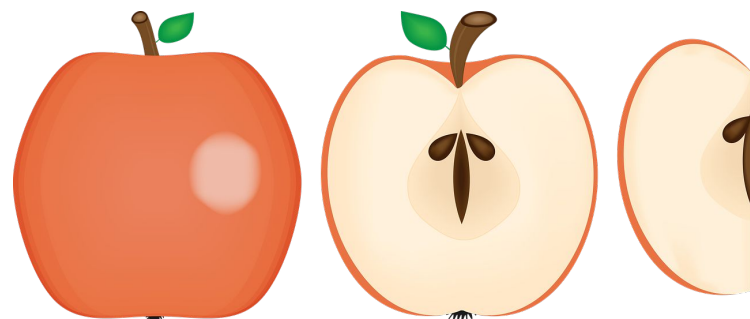
For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



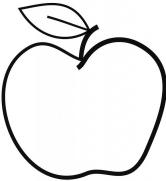






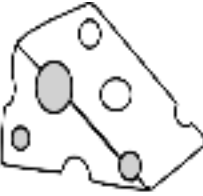

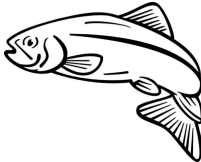





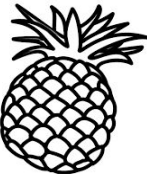



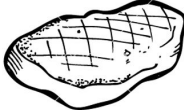



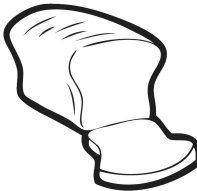



# HEALTHY SNACK IDEAS FOR YOU AND YOUR FAMILY

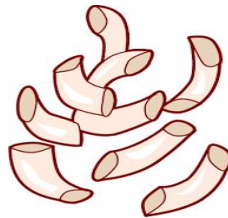
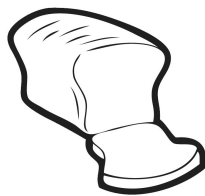
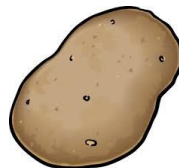
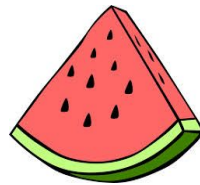
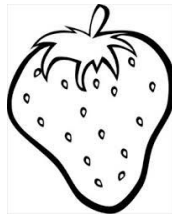
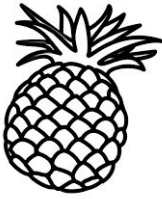
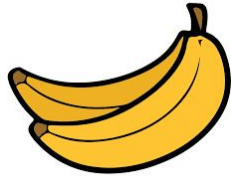
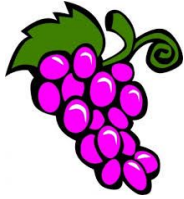
- Peanut butter and apple slices
- Hummus with carrots, celery, and bell peppers
- Whole grain crackers with cheese
- Smoothies made from:
  - Any fresh or frozen fruit (no sugar added)
  - Spinach and/or kale
  - Low fat yogurt, any flavor
  - Milk or 100% fruit juice
- Unbuttered popcorn with peanut butter chips
- Avocado spread on whole wheat toast
- Sugar snap peas and mandarin oranges
- Low fat, vanilla yogurt with fresh berries
- Unsalted dry roasted almonds
- Dried cranberries and apricots
- Turkey and swiss roll-ups

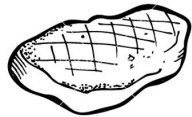
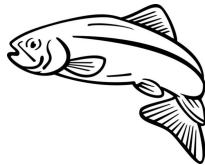
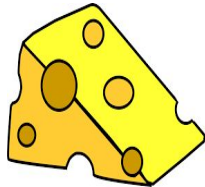
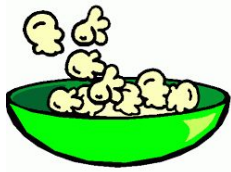


# Food BINGO!

Fruit	Veggies	Dairy	Grains	Protein
				
				
				
				
				

Only 1 of 26 BINGO! sheets is shown in this appendix for reference. The BINGO! sheets were used in both the third through fifth and kindergarten through second curricula.





\*Note: the ice cream picture is not included in this document to prevent all of the dairy foods being called (which would result in all of the students getting a BINGO at the same time). Do not play "Blackout" with this set.

# Mission Nutrition, Lesson Plan 2 (3rd-5th)

## Learning Portions

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### Summary

1. Subject: Portions
2. Grades: 3rd, 4th, and 5th
3. Objective: To teach the students the recommended servings for each food group and what a serving looks like using common household objects.
4. Time Allotment: 50 minutes

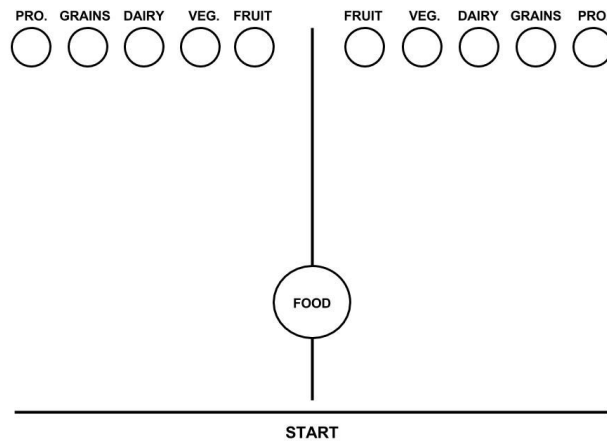
### Implementation

#### Learning Context

- a. In the previous lesson, we talked about the five food groups and how much to eat of each. In this lesson, we will discuss recommended daily servings and what these actually look like. Students will likely have very limited knowledge of the serving sizes and proper portions.

#### Procedure

- a. Food group relay (10 min)
  - Set up plates, signs, and basket of plastic fruits according to the diagram below:



1. Designate two sets of five food group stations on each side of the room
  2. Divide participants into two equal teams and have each team form a line
  3. Place a basket of food models from each of the food groups in the middle of the two groups.
  4. Instruct participants to make a single-file line and run to grab a food from the basket then run and place it at the appropriate food group station
  5. Participants should then run back and gently tag the next team member in line.
  6. The team with the most items sorted correctly when items run out wins!
- b. Fruity Grahams (5 min)
- Show the students how to make the “Fruity Grahams”
  - Have the students line up a few at a time and allow them to make a certain number of grahams
- c. Food Group Review (3 min)
- Ask the students to recall the five food groups and the recommended servings per day (write both on the board).
    - Grains: 6 ounces
    - Protein: 5.5 ounces
    - Fruit: 2 cups
    - Veggies: 2.5 cups
    - Dairy: 3 cups
- d. Portion Sizes Discussion (15 min)
- Ask the students if they know what the MyPlate servings mean
    - Explain that each is a measure of how much food we have on our plates
  - Measuring cups
    - Explain that measuring cups measure volume, which is used to tell amounts for most fruits, vegetables, and dairy products

- Ask the students if they have ever used measuring cups when cooking or baking
  - Explain that measuring cups can be used to measure all types of food
- Fill up the 1 cup measuring cup with beans, pour in a drinking glass
  - Show the students that “a cup/glass” does NOT equal “1 cup”
  - Explain that, usually, a drinking glass holds more than a standard cup and that a full glass of, say, orange juice, is almost 2 cups.
- Pass out the “Matching Portions” worksheet
  - Have a student read the directions and instruct children to write their names at the top
  - Children should draw a line from the food to the portion size example
  - The other volunteers should sit with children and help them follow along
- Show the students each object and explain what it can be compared to in order to tell how much we are eating (do NOT pass them around).
  - Deck of cards = 3 oz cooked meat
  - Tennis ball = 1 cup rice, pasta, or ice cream
  - Baseball = medium fruit
  - Golfball = 2 tbsp peanut butter
  - CD-ROM = 1 slice of bread = 1 ounce of grains
- e. Five Corners (15 min)
  - In the classroom or the gym, hang up posters or set signs around the room
  - Explain to students:
    - When I call a food, you will walk to the station you think the food fits in: fruits, vegetables, dairy, grains, or protein
    - There are no winners or losers; this is just for fun (no one gets “out”)
  - Draw Food BINGO! cards from a baggie and call them out. After all the children decide on a food group, tell them the correct answer.
  - Call as many foods as possible before time runs out.
- f. Clean-up (3 min)
- g. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week and “Fruity Grahams” recipe



## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - “Matching Portions” worksheets
  - Handout of the week
  - “Fruity Grahams” recipe cards
- b. Resources:
  - Snack: graham crackers, vanilla yogurt, and cut strawberries and blueberries; plates and napkins
  - Demonstration materials: Tennis ball, Baseball, Golf ball, Dice, Cards, CD-ROM, Measuring cups, Beans, Drinking cup, Bowl, & Plate
  - Food models from each of the food groups (for relay race)
  - Food group signs & plates for food group stations (for relay race)
    - Signs will also be used in “Five corners”
  - Masking tape for signs (if needed)
  - BINGO! cards





# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing MyPlate!



This week we learned about MyPlate and how to use it, the recommended daily servings for each food group, and what those serving sizes look like.

- Notice on MyPlate that the Vegetables and Grains groups are larger than the Fruits and Protein groups.
- Be sure to make half of your plate fruits and veggies!
- MyPlate is meant to be used as a general guide for each meal.
  - Separate recommended serving sizes are meant to guide how much you eat over the whole day.

1 ounce of grains is equal to:

- 1 cup cold cereal
- 1/2 cup rice, grains, or pasta
- 1 6 inch tortilla

1 cup of dairy is equal to:

- 2 oz cheese
- 1 cup milk, yogurt, or ice cream

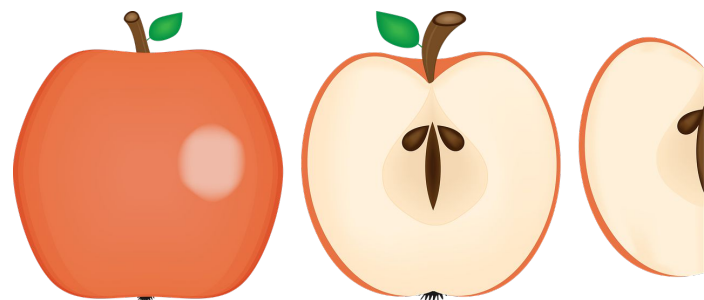
1 ounce of protein is equal to:

- 1 ounce cooked meat, fish, or poultry
- 1/4 cup beans or tofu
- 1 egg
- 1 tablespoon nut butter
- 1/2 ounce nuts or seeds

Food Group	Recommended daily servings*	Tips
Fruits	2 cups	Focus on whole fruits
Vegetables	2.5 cups	Get a wide variety
Dairy	3 cups	Limit high-sugar dairy products
Grains	6 ounces	Make half your grains whole grains
Protein	5.5 ounces	Limit processed meats

\*Recommended daily servings are based on a 2,000 Calorie diet.

For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# **SERVING SIZE COMPARISONS USING EVERYDAY OBJECTS**

<b>Object</b>	<b>Comparable to</b>	<b>Another Equivalent</b>
	<b>3 ounces of cooked meat</b>	<b>The palm of your hand</b>
	<b>1 slice of bread (1 ounce of grains)</b>	<b>An open hand</b>
	<b>1 cup of rice, pasta, fruits, or vegetables</b>	<b>A closed fist</b>
	<b>1 medium apple, orange, peach, etc. (1 cup of fruit)</b>	<b>A closed fist</b>
	<b>2 Tablespoons of nut butter (2 ounces of protein)</b>	<b>Two thumbs</b>

# FRUITY GRAHAMS

## Ingredients

- 6 graham crackers broken in half
- 3/4 cup nonfat vanilla yogurt
- 2 cups berries, any type

## Directions

1. Take 1 half piece of graham cracker
2. Scoop about 1 Tbsp of yogurt on top and spread around
3. Top with your favorite berries in fun patterns or shapes
4. Repeat with the rest of the crackers



MISSION  
NUTRITION

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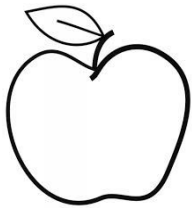


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NUTRITION

Name: \_\_\_\_\_

# Matching Portions

Directions: draw a line from the food to the item that matches it as we talk about them.



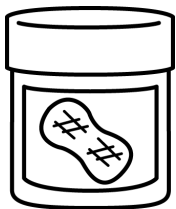
1 medium apple



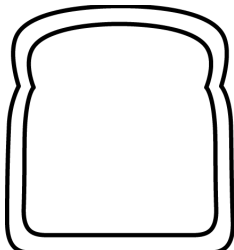
1 cup of rice



3 ounces of chicken



2 Tablespoons of peanut butter



1 slice of bread



1 CD-ROM



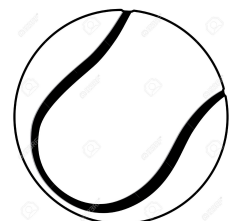
1 deck of cards



1 baseball



1 golf ball



1 tennis ball

# Mission Nutrition, Lesson Plan 3 (3rd-5th)

## Making Healthy Choices

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### Summary

1. Subject: Making healthy choices
2. Grades: 3rd, 4th, and 5th
3. Objective: To teach the students the difference between healthy foods and “sometimes foods” using the “Green-light, Yellow-light, Red-light” model and how to apply this skill to real-life situations.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. The students may have been taught or already understand what “sometimes foods” are. In this lesson, however, we are going to take it a step further and teach them about “Green-light, Yellow-light, and Red-light” foods. The students are also probably familiar with what they understand to be healthier choices of drinks, but we will solidify that understanding.

#### Procedure

- a. Fruit Kebabs (10 min)
  - Show students an example of a fruit kebab.
    - Remind them to hold it sideways while putting on fruit to prevent them from poking themselves.
  - Dismiss a few students at a time to make their kebabs.
    - Remind them that there is no fighting with or breaking the sticks (otherwise there will be no smoothies next week).
- b. Sugar Baggies Demonstration (15 min)
  - On whiteboard, list the drinks in the order they appear on the worksheet.
    1. Pass out worksheets and ask a student to read the directions. Explain further if necessary.

2. Hand out the baggies to students/pairs of students IN ORDER. Also hand them the corresponding envelope and tell them “do not open it until I let you know it is your turn to do so”
3. Starting from #1, have the student/pair hold up their bag and share the calories and teaspoons of sugar. Ask them what they think the bag matches. Ask the rest of the group to share their thoughts.
4. Ask the student/pair to now open their envelope and read the drink that their bag matches. Write the number on the board and have everyone write it down on their sheets.
5. Continue this process (steps 3-5) for all 10 baggies
6. Discuss which drinks are the healthy choices (water, skim milk, 100% orange juice, & even chocolate milk). Talk about which drinks are the unhealthy choices, and ask how often they drink these. Explain that most of what we drink should either be water or some kind of milk.

Number	Drink	Tsps sugar*	Calories
1	Water	0	0
2	Fat-Free Plain Milk	0	83
3	100% Orange Juice	0	122
4	Sports Drink	3	65
5	Fat-Free Chocolate Milk	3	140
6	Soft Drink	5 1/4	91
7	Fruit-Flavored Powder Mix	5 1/2	88
8	Lemonade	5 1/2	114
9	Root Beer	6 1/4	101
10	Fruit Drink (with High Vit C)	7 1/4	128

\*Teaspoons of ADDED sugar in 8 fluid ounces

c. Restaurant Activity (20 min)

- Split into small groups. Pass around menus for “America’s Diner.”
- Talk with students:
  - “What would you normally order?”

- “Do you know what a red light means? A green light? Yellow?”
- “These lights can also help us remember which foods are healthy, moderately healthy, and unhealthy.”
  - “Green light” foods are foods that are good for you and you should eat all the time
  - “Yellow light” foods aren’t necessarily unhealthy, but there are better options than “red light” foods. These foods are those that you should eat less of than “green light” foods
  - “Red light” foods are ones that you should only eat on special occasions (such as birthdays, holidays, etc.)
- “Which foods in this section of the menu are healthy, “green light” foods?”
  - Highlight or circle them with a green crayon
  - Repeat for yellow, then red in each menu section (e.g., appetizers, entrees, beverages)
- Ask them to make a meal, individually, that has 3 “green light” foods, 1 “yellow light” food, and 1 “red light” food (one from each section of the menu).
- e. Clean-up (3 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week

## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - “Rethink Your Drink” worksheet
  - “America’s Diner” menus
  - Handout of the week
- b. Resources:
  - Snack: pre-cut melons, pineapple, apples, strawberries, and/or grapes; kebab sticks; plates and napkins
  - Sugar Baggies and envelopes
  - Pencils/writing utensils
  - Red, Yellow, and Green crayons

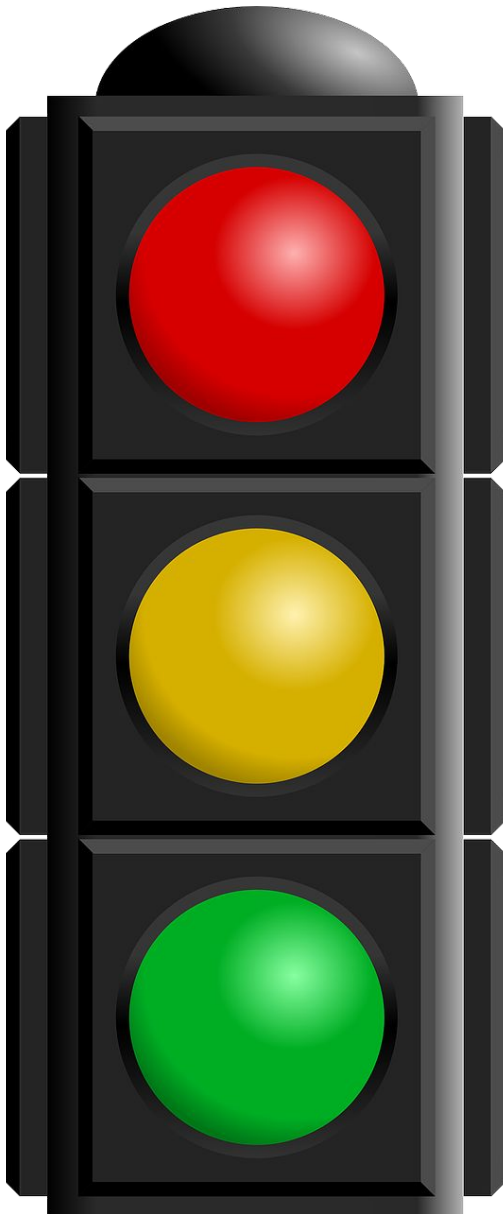




# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Making Healthy Choices!

This week we learned how to make healthy choices by using the “Green-light, Yellow-light, Red-light” Model.



### Red-light:

- Red-light foods are ones we should limit to special occasions (birthdays, holidays, etc.).
- This includes food such as
  - High-sugar foods: cake, brownies, and pie
  - Fried foods: corn dogs, fried chicken, and french fries
  - Processed meats: sausage, hot dogs, and pepperoni
  - Fast food

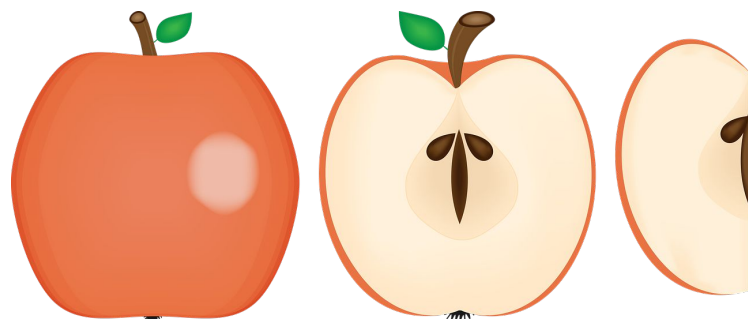
### Yellow-light:

- Yellow-light foods are ones we can include in regular meals, but should still be eaten in moderation.
- This includes food with a mixture of red-light and green-light foods, as well as generally less healthy foods such as
  - Pizza, hamburgers, and grilled cheese

### Green-light:

- Green-light foods are ones we should include in every meal, and they should make up the majority of our plates.
- This includes food such as
  - Fruits and vegetables
  - Whole grains
  - Lean meat
  - Dairy products

For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)





# RETHINK YOUR DRINK!

In a 1 cup (8 ounce) serving of each of the drinks below, there is a varying amount of added sugar.

Number	Drink	Teaspoons of added sugar	Calories
1	Water	0	0
2	Fat-Free Plain Milk	0	83
3	100% OJ	0	122
4	Sports Drink	3	65
5	Fat-Free Chocolate Milk	3	140
6	Soft Drink	5 1/4	91
7	Fruit-Flavored Powder Mix (Kool-Aid)	5 1/2	88
8	Lemonade	5 1/2	114
9	Root Beer	6 1/4	101
10	Fruit Drink (with High Vitamin C; Sunny-D)	7 1/4	128

As you can see, fruit drinks such as Sunny-D have over 7.25 teaspoons of added sugar in every 8 ounces - that is more than 30 grams! Other sodas and lemonade also should be consumed in moderation. It is best to drink water, milk, and 100% juice.

Name: \_\_\_\_\_

## Rethink Your Drink!

Directions: Write the number of the bag that matches the Calories and teaspoons of added sugar per serving (8 ounces, 1 cup) to each drink.

Drink	# of Baggie
Soft Drink (Coca Cola)	
100% Orange Juice	
Lemonade	
Fat-Free Plain Milk	
Fat-Free Chocolate Milk	
Fruit Drink (Sunny D)	
Water	
Fruit-Flavored Powder Drink (Kool Aid)	
Root Beer	
Sports Drink (Gatorade)	



# America's Diner

## **Appetizers**

Chips and salsa  
Mozzarella sticks  
Salad

## **Entrees**

Hamburger/cheeseburger  
Pizza (cheese, pepperoni)  
Chicken fingers (fried or grilled)  
Mini corndogs  
Grilled cheese

**-OR-**

### **Build your own pasta:**

Noodles: bow-ties, spaghetti (whole wheat)  
Sauce: marinara (red), alfredo (white)





## **Sides**

French fries

Fruit salad

Broccoli

Apple sauce

Mashed potatoes and gravy

Celery and carrots

Potato chips

## **Beverages**

Soda (Diet Coke, Sprite, Dr. Pepper, Fanta)

Lemonade

100% Apple juice

Water

Milk (Skim, 2%, whole, chocolate)

## **Desserts**

Oreo shake

Brownie sundae

Ice cream and fresh fruit



# America's Diner

## Appetizers

Chips and salsa

Mozzarella sticks

Salad

## Entrees

Hamburger/cheeseburger

Pizza (cheese, pepperoni)

Chicken fingers (fried or grilled)

Mini corndogs

Grilled cheese

-OR-

## Build your own pasta:

Noodles: (bow-ties, spaghetti (whole wheat))

Sauce: (marinara (red), alfredo (white))





## **Sides**

French fries

Fruit salad

Broccoli

Apple sauce

Mashed potatoes and gravy

Celery and carrots

Potato chips

## **Beverages**

Soda (Diet Coke, Sprite, Dr. Pepper, Fanta)

Lemonade

100% Apple juice

Water

Milk (Skim, 2%, whole, chocolate)

## **Desserts**

Oreo shake

Brownie sundae

Ice cream and fresh fruit

# Mission Nutrition, Lesson Plan 4 (3rd-5th)

## Nutrients and Nutrition Labels

---

### Summary

1. Subject: Nutrients and nutrition labels.
2. Grades: 3rd, 4th, and 5th
3. Objective: To teach the students about macronutrients and micronutrients, as well as how to read nutrition labels.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. Although they may have heard of carbohydrates, fats, and protein, it is unlikely that the students will have much experience with or true understanding of any of these topics.

#### Procedure

- a. Smoothies (5 min)
  - Make the smoothies beforehand. As helpers pass them out and the students drink, talk about the following:
    - What does the word “nutrient” mean?
      - Definition: “A substance that provides nourishment essential for growth and the maintenance of life.”
      - They are what makeup food
    - What are calories?
      - Definition: “Units of energy that express how much energy a food releases when it is digested?”
      - 10- to 11-year-olds should eat around 2,000 Calories per day
- b. Macronutrient Worksheet (20 min)
  - After cutting out all of the pictures/words, begin discussing Carbohydrates, then Proteins, then Lipids and have the kids match and glue the pictures/words with the corresponding nutrient. Expand as necessary.

- Directions: “All of the words and pictures you cut out match one of these important nutrients. In each row, there will be one focus word, a picture that represents its function, and an example of a food that is an important source of the nutrient.”
  - Carbohydrates:
    - Sugars: immediate source of energy (glucose)
      - Can power you for a little while
      - Is like a battery
      - Example: apple
    - Starches: Long-term energy
      - Major fuel for the body
      - Is like gasoline
      - Example: potato
    - Fiber: helps with digestion (indigestible)--NOT a nutrient (does not provide energy)
      - Keeps things moving
      - Is like a wheel
      - Example: bread
  - Protein:
    - Building blocks/structural components: Amino Acids
      - Part of bones, muscles, blood, and more
      - Like bricks that make up a house, they make up our body
      - Good sources: Fish, poultry, beans, nuts, and meat (example: chicken leg)
  - Lipids:
    - Fats: solid, less healthy.
      - Keeps you warm and padded
      - Is like a coat
      - Example: butter
    - Oils: liquid
      - Stores energy AND vitamins/minerals
      - Is like a storage chest
      - Example: sunflower oil
- c. Vitamins and Minerals Game (10 min)
  - Teach the children the movements associated with each vitamin/mineral, then start the game by randomly saying a vitamin/mineral and have them do the action associated with it. If they do the wrong action, they are out.
    - Play a practice round or two to learn the actions



- Teachers are judges (no arguing).
- Speed up and add in more actions as they go along.
- Play until someone wins bubbles
- Vitamin A: helps you see & grow
  - Red/orange and green veggies
  - Point to EYES
- B vitamins: helps release energy from foods
  - Legumes, green veggies, grains
  - RUN in place
- Vitamin C: helps heal wounds & recover from sickness
  - Citrus fruits, green veggies
  - Rub KNEE
- Calcium: builds strong bones
  - Dairy & fortified soy products
  - Flex ARMS
- Iron: makes more blood cells
  - Red meat, fortified grains
  - Pump HEART

----- Add in after a while -----

- Vitamin D: Helps calcium build strong bones
    - Fortified milk & fish
    - Shake someone's HAND
  - Potassium: helps contract muscles
    - Avocados, spinach, bananas, yogurt
    - LIFT WEIGHTS
- e. Nutrition Label Matching Game (10 min)
- Layout the notecards on the table or floor with space between them
  - Handout 1 or 2 nutrition labels to each student
  - Have the students match the label to the card
  - Check for accuracy
- f. Clean-up (3 min)
- g. Closing (2 min)
- Have the students line up according to after school plan
  - Give them the handout of the week and "Fruit Smoothies" recipe



## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - Macronutrients worksheet
  - Handout of the week
  - “Fruit Smoothies” recipe card
- b. Resources:
  - Snack: frozen fruit, bananas, orange juice, and vanilla yogurt
    - Blender
    - Cups
    - Napkins
  - Scissors
  - Gluesticks
  - Nutrition labels and matching cards



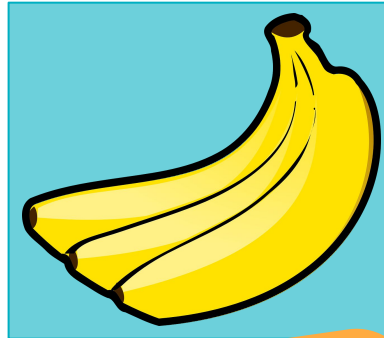
# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing: Nutrients!

This week we learned about the important nutrients that our bodies need to stay healthy.

Proteins are made up of molecules called AMINO ACIDS and are found in all sorts of foods.

- Foods high in protein include meat, poultry, fish, nuts, seeds, and beans as well as some dairy products and grains.
- Protein plays an important role in being healthy, growing, and staying strong!



### Remember:

It is important to eat a variety of foods. Try to fill your plate with lots of different colors.

### Remember:

While all nutrients are needed in the diet, foods high in sugar, saturated fat, and trans fat should be eaten in moderation.

## Proteins

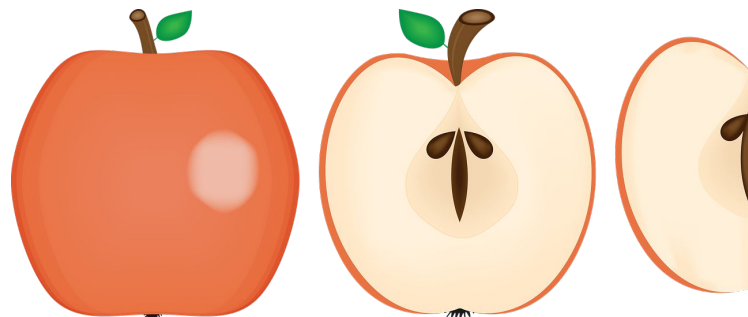


## Carbohydrates

There are three types of carbs: FIBER, STARCH, and SUGAR.

- Fiber is naturally found in whole grains, fruits, and vegetables.
  - Fiber helps our digestive system.
  - Most people do not get enough fiber in their diet.
- Starch is found in foods like pasta, potatoes, and corn.
  - Starches provide large amounts of energy.
- Sugars are naturally found in fruits and other foods.
  - However, when people eat too much processed sugar, this can cause them to gain weight and is unhealthy.

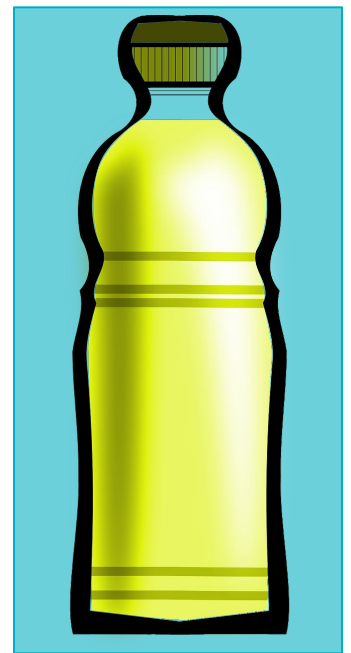
For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# Fats

There are two types of lipids in our food: OILS and FATS.

- Oils are generally liquid at room temperature and include canola oil, sunflower oil, olive oil, and more.
  - Most oils are relatively good for us, but should still be eaten in moderation.
  - Avocados, fish, nuts, and seeds are great, healthy sources of oil.
- Fats are generally solid at room temperature and include butter, lard, and margarine.
  - Saturated fats are fine when consumed in moderation, but can damage your heart if eaten too much.



# Vitamins and Minerals



## Vitamins

There are many types of vitamins! A few are listed below:

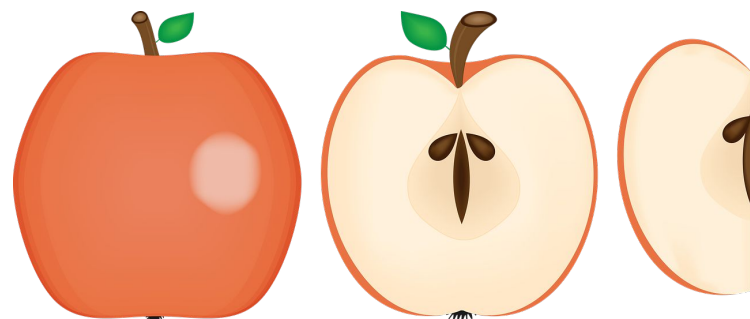
- Vitamin A: promotes healthy eyes and skin
  - Found in dark green veggies as well as red and orange fruits and vegetables
- B Vitamins: help release energy from foods
  - Found in many protein foods and grains
- Vitamin C: helps heal wounds and keeps your gums healthy
  - Found in citrus fruits and dark green veggies
- Vitamin D: works with calcium to keep your bones strong
  - Found in dairy products and fortified cereals

## Minerals

There are many types of minerals. A few are listed below:

- Potassium: helps your muscles contract
  - Found in dairy, fruits, and vegetables
- Calcium: builds strong bones
  - Found in dairy products and fortified soy milk
- Iron: keeps your blood healthy
  - Found in red meat as well as fortified grains

Information used comes from  
[www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# FRUIT SMOOTHIES

## Ingredients

- 2 cups low-fat vanilla yogurt
- 1 cup 100% fruit juice or skim milk
- 3 cups any fruit (fresh or frozen)

## Directions

- Combine all ingredients in blender until smooth

## Fruit Ideas

- Strawberries and bananas
- Peaches and blueberries
- Raspberries and pineapple
- Kiwis and strawberries
- Try adding some spinach or kale!



MISSION  
NUTRITION

# FRUIT SMOOTHIES

## Ingredients

- 2 cups low-fat vanilla yogurt
- 1 cup 100% fruit juice or skim milk
- 3 cups any fruit (fresh or frozen)

## Directions

- Combine all ingredients in blender until smooth

## Fruit Ideas

- Strawberries and bananas
- Peaches and blueberries
- Raspberries and pineapple
- Kiwis and strawberries
- Try adding some spinach or kale!


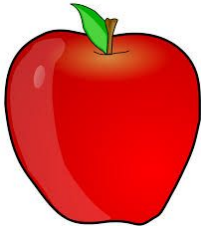


MISSION  
NUTRITION

Name: \_\_\_\_\_

Directions: cut out the pictures at the end of this worksheet. During our discussion, match the pictures with the nutrient it helps explain.

# Carbohydrates

Type	is like...	Example
Sugar		

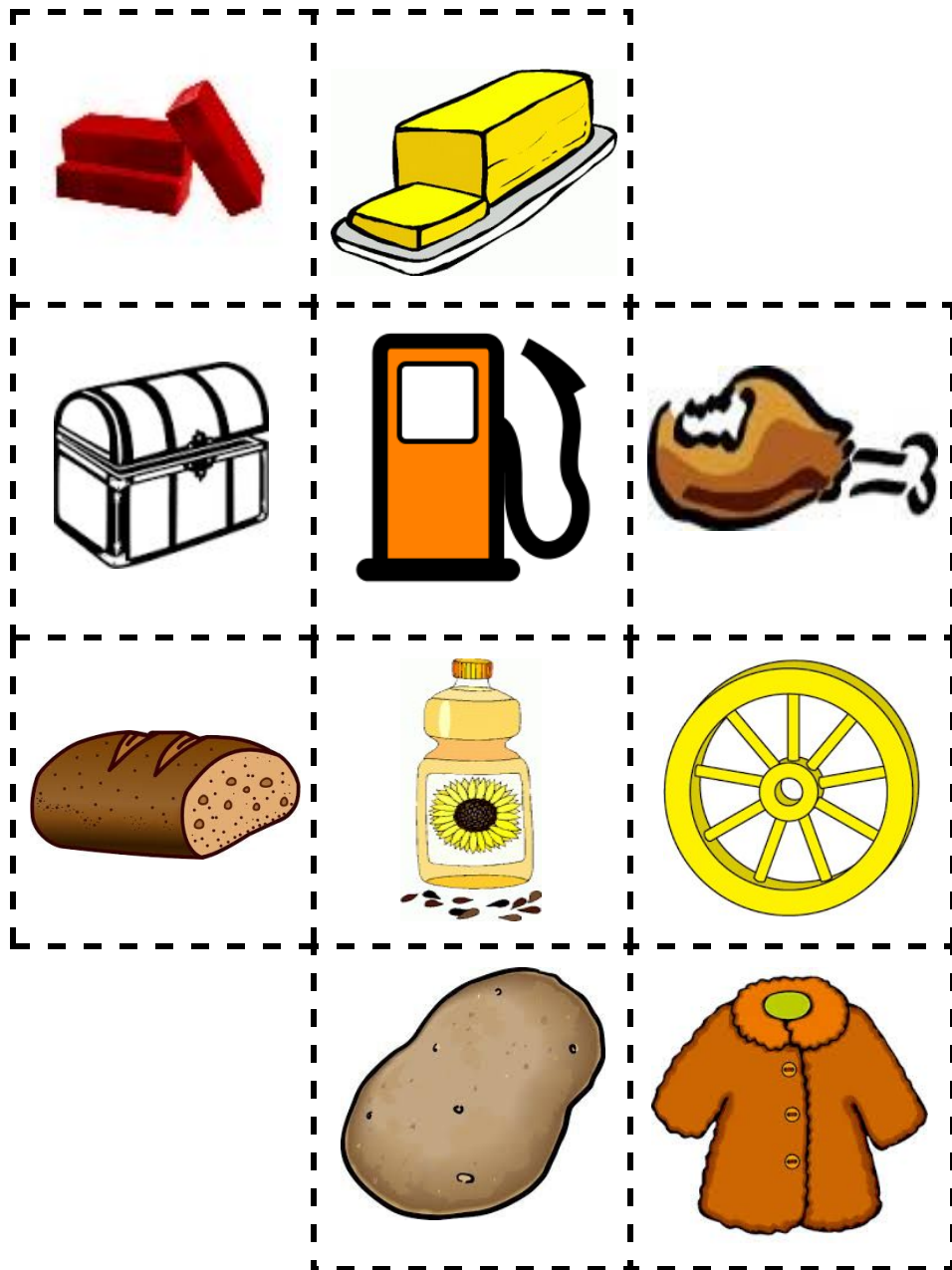
# Protein

Part	are like...	Example

# Lipids

Type	are like...	Example

Directions: cut along the dotted lines and glue each picture in its place in the tables during our discussion.



	Oils	Fiber
Amino Acids	Starch	Fats



## Mission Nutrition, Lesson Plan 5 (3rd-5th)

# Exercise and Healthy Eating Habits

### Summary

1. Subject: Exercise and healthy eating habits
2. Grades: 3rd, 4th, and 5th
3. Objective: To teach the students how to exercise properly, why exercise is important, and what eating habits are healthy (and unhealthy).
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. Most children know what exercise is and understand that it can be helpful in losing weight, but do not know most of the benefits. In addition, many children know that overeating is unhealthy but do not know how to prevent it.

#### Procedure

- a. Exercise to music (10 min)
  - In the gym or outside, gather the students and explain that we will be trying out different exercises.
  - Play music from a child-friendly playlist at a volume loud enough to hear, but not too loud that the students can't pay attention.
  - Take suggestions for different exercises, deciding the amount as you go.
    - If children are stuck, try the following:
      - Jumping jacks
      - Lunges
      - Sit-ups
      - Push-ups
      - Arm circles
      - Knee-ups

- Plank
  - Run
  - Be very quick and upbeat
  - After doing 5 or 6 formal exercises, try some yoga (sun salutation, tree pose if there is enough time).
  - Stretch AFTER exercises
    - Touch toes
    - Butterfly
    - Thigh stretch (standing)
    - Arm stretches (behind head)
- b. Hummus, carrots, and pita chips (5 min)
  - Describe what hummus is (how it is made, what it tastes/feels like).
  - Ask that all students try it, but do not force them to.
- c. Exercise Discussion (10 min)
  - As the students are eating, discuss exercise.
  - Ask students: “Why is exercise important?” (Write on the board.)
    1. Helps maintain strong bones
    2. Controls weight
    3. Builds muscles
    4. Improves sleep
    5. Improves mood
    6. Prevents chronic diseases
  - Ask students: “How long should you exercise every day?”
    - 60 minutes/1 hour
  - Ask students: “Why did we stretch after exercising?”
    - To prevent pulling a muscle
  - Ask students: “What kinds of sports do you play?”
  - “There are lots of other types of exercise, too.”
    - Formal exercise (like jumping jacks and sit-ups)
    - Running
    - Walking
    - Riding a bike
    - Swimming
    - Jumping rope
- d. Coloring “Healthy Eating Habits” Posters (20 minutes)
  - Hand out the posters (separate document) and explain what each one means as crayons are passed out. (Instruct them to not write their name on the poster.)
  - Ask the children to read their posters aloud, discuss why we would do these things.



- Eat slowly: “Our tummies take time to feel full. If we eat too fast, we often eat too much.”
  - Don’t eat and watch TV: “TV distracts us and if we are distracted we eat too much.”
  - Use small plates: “Using too large of plates causes us to get more food and then eat too much.”
  - Stop eating when you are full: “Eating after you feel full means you are eating too much, and that is unhealthy.”
  - Portion out your snacks: “When we take our snacks, like potato chips or popcorn, out of the bag and into a separate bowl we tend to eat less.”
  - Don’t eat because you are bored: “Eating when you are bored or sad makes you eat too much. We need to eat when we are hungry and stop when we are full.”
  - Drink lots of water: “It is important to stay hydrated throughout the day, especially if you have been running around or playing outside.”
  - Don’t skip meals: “Skipping meals, like breakfast, makes you hungrier throughout the day--distracting you and often leading to eating quick, unhealthy food.”
- Have the children color the posters appropriately
  - Later, hang the posters around the school
- e. Clean-up (3 min)
- f. Closing (2 min)
- Have the students line up according to after school plan
  - Give them handout of the week

## Materials & Resources

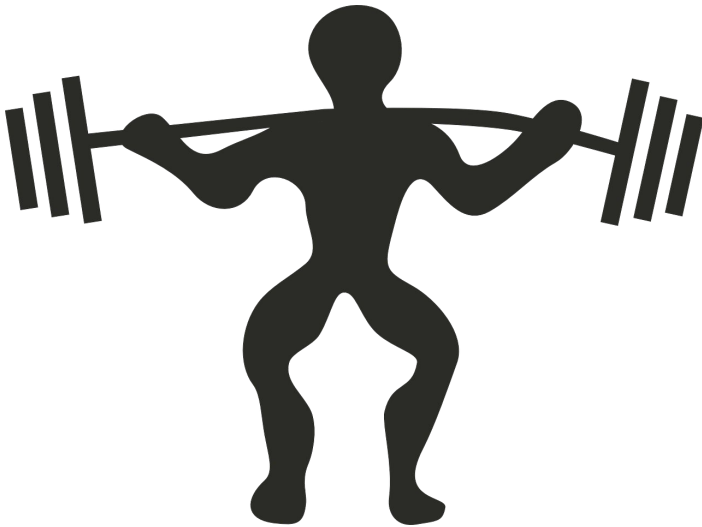
- a. Instructional Materials:
- Lesson plan
  - Healthy Eating Habits Posters
  - Handout of the week
- b. Resources:
- Snack: hummus, carrots and/or celery, pita chips; plates and napkins
  - Crayons
  - Speaker for music



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing: Exercise!

This week we learned about how to exercise properly, why exercise is important, as well as tips on healthy eating habits.



There are many fun and family-friendly ways to exercise.

- Going for a walk
- Going on a bike ride
- Swimming

Of course, there are also a lot of sports that children can enjoy which keeps them active.

- Soccer
- Baseball
- Basketball
- Football
- Volleyball

Why is exercise important?

- Helps maintain strong bones
- Controls weight
- Builds muscles
- Improves sleep
- Improves mood
- Prevents chronic diseases

In addition, children like to play active games on their own.

- Jump rope
- Tag
- Hopscotch

There are also 3 types of exercise:

1. Aerobic (cardio)
2. Flexibility building
3. Strength-training

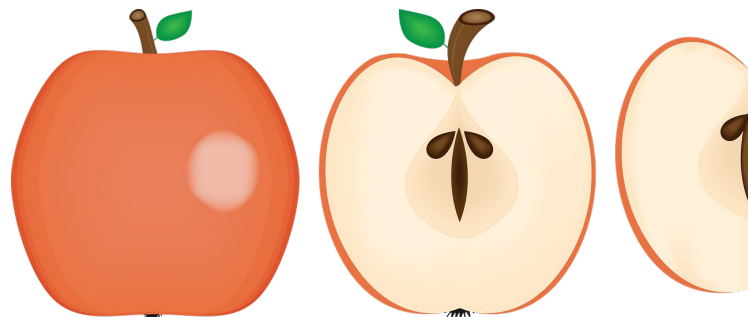
### Remember:

Children need at least 60 minutes of exercise EVERY DAY.

### Remember:

Stretch AFTER exercising. Stretching before can hurt your muscles.

For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



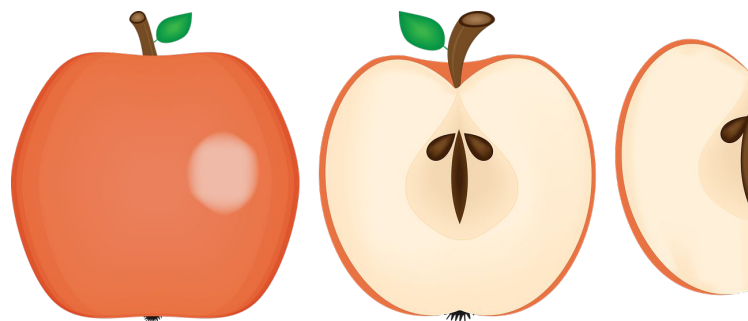
# THE DO'S AND DON'TS OF EATING HEALTHY

DO	DON'T
Eat slowly	Eat while watching TV
Use small plates	Keep eating after you are full
Portion out snacks	Eat because you are bored or sad
Stay hydrated	Skip meals

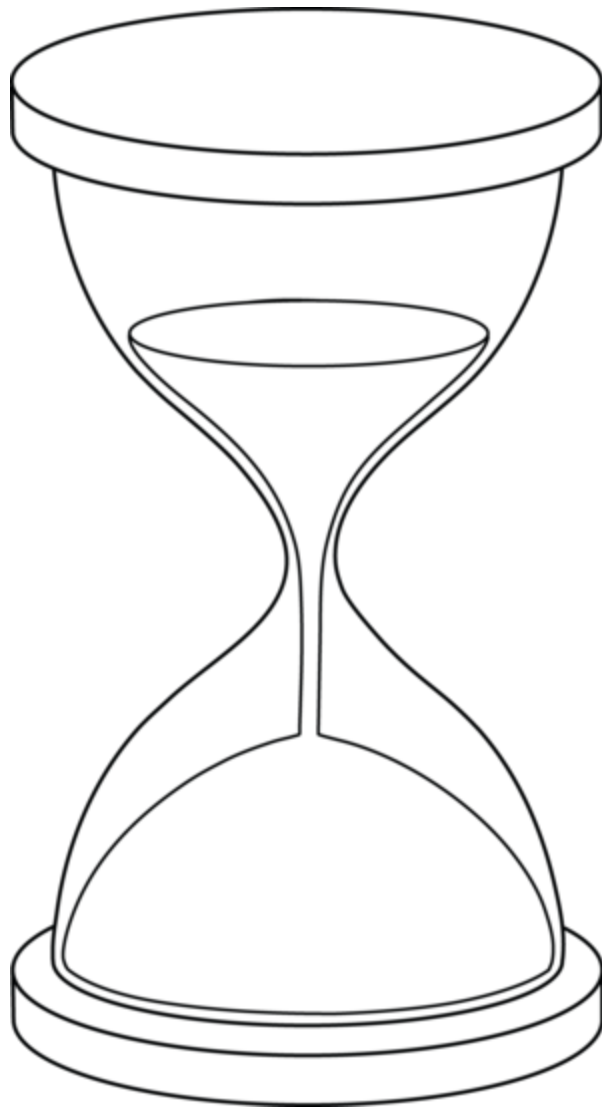
Most of these “DO’s” and “DON’Ts” come down to overeating. By using small plates, eating slowly, and being mindful of how much you are eating, you will feel and be healthier.

**Remember:**

Eating meals together and at a table builds family bonds and allows adults to model healthy eating behaviors.



**Remember:**  
**EAT SLOWLY!**



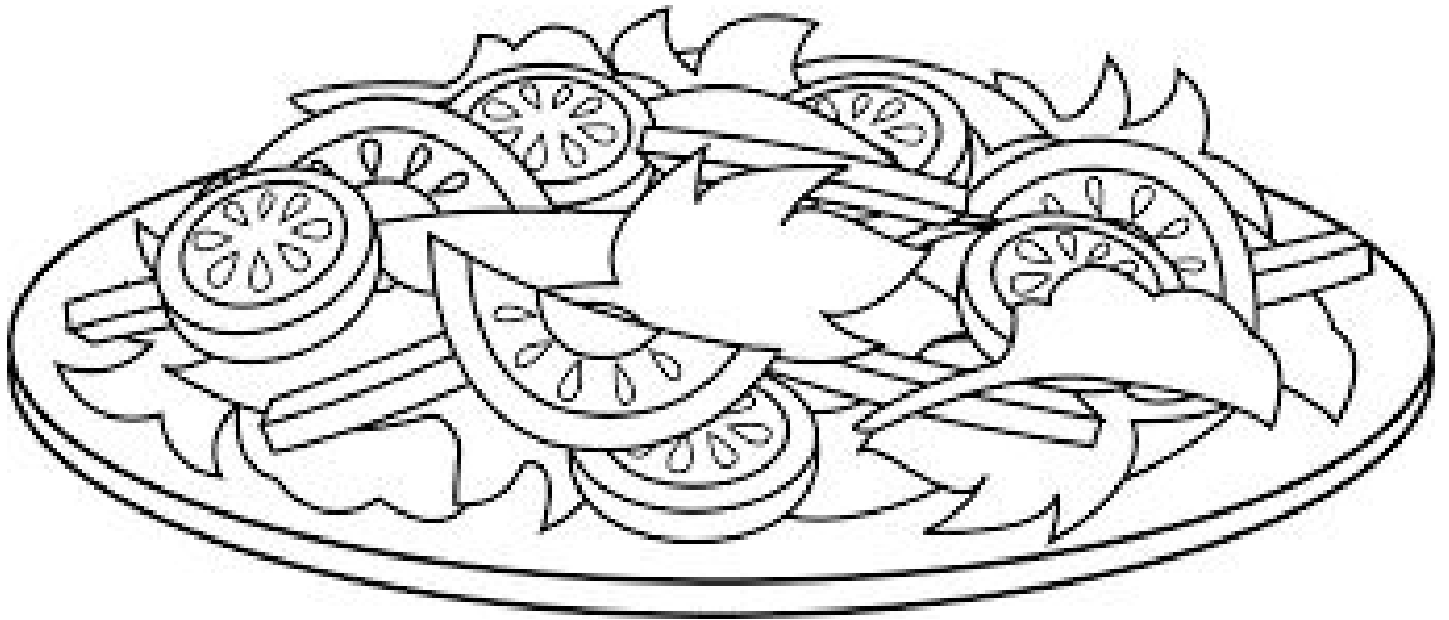
**JOIN MISSION NUTRITION**  
**CLUB next QUARTER!**

**Remember:**  
**DON'T EAT AND**  
**WATCH TV!**



**JOIN MISSION NUTRITION**  
**CLUB NEXT QUARTER!**

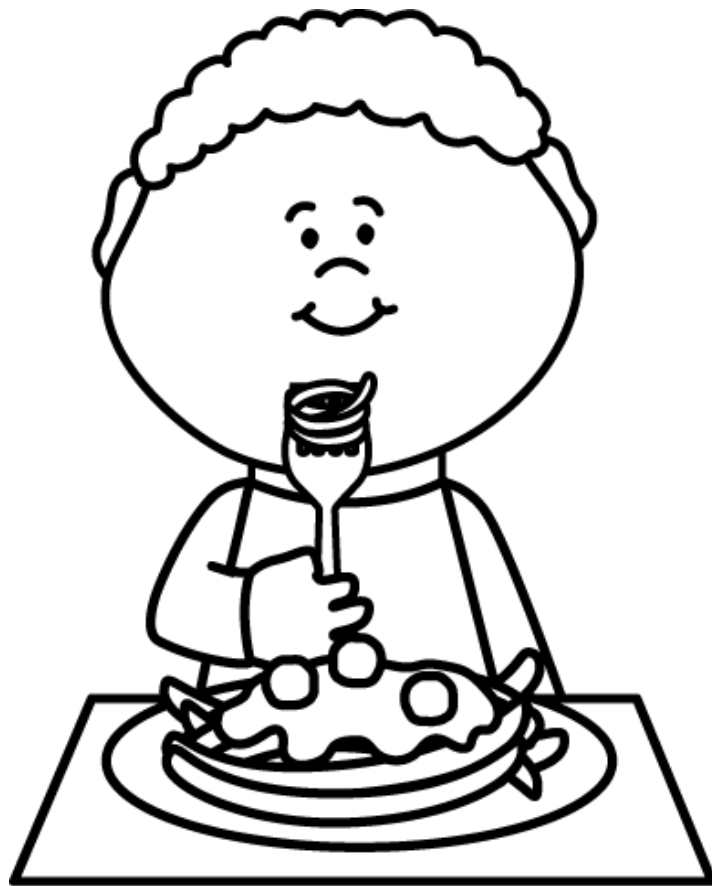
**Remember:**  
**USE SMALL PLATES!**



**JOIN MISSION NUTRITION**  
**CLUB next quarter!**

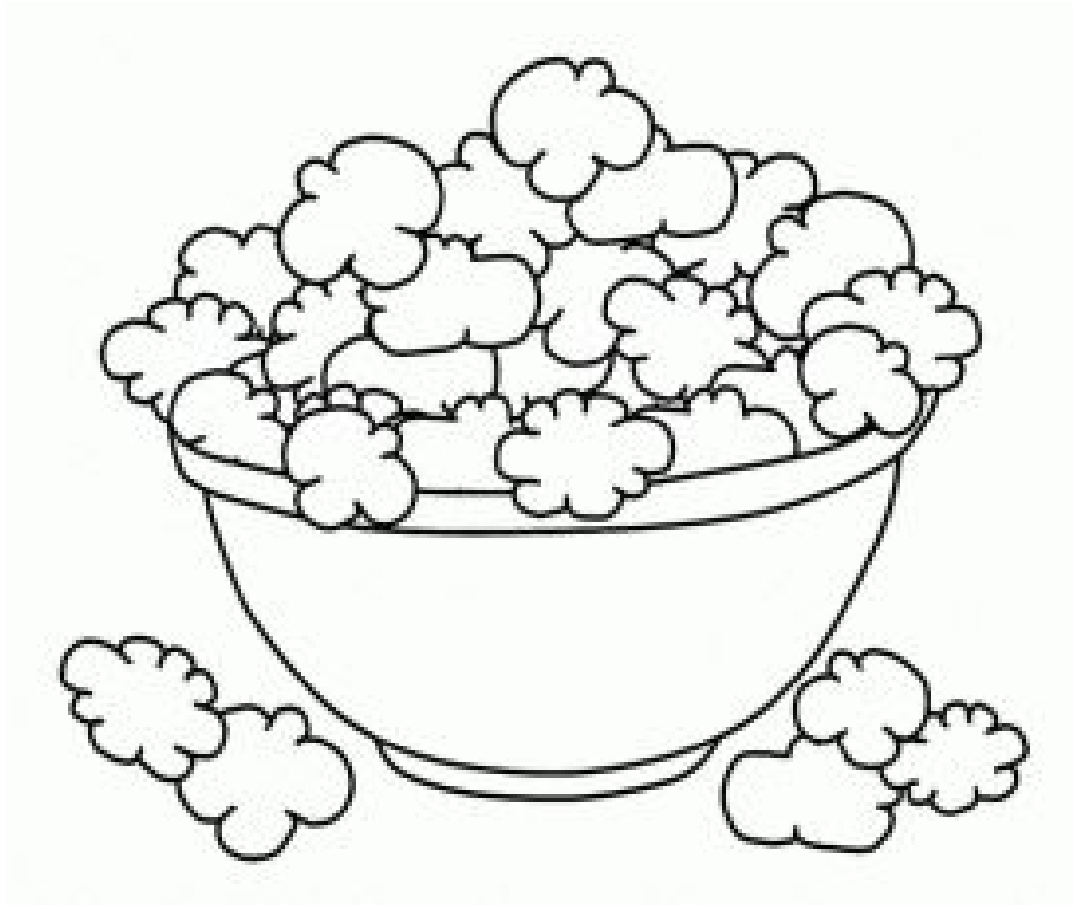


**Remember:**  
**STOP EATING WHEN**  
**YOU ARE FULL!**



**JOIN MISSION NUTRITION**  
**CLUB NEXT QUARTER!**

**Remember:**  
**PORTION OUT YOUR**  
**SNACKS!**



**JOIN MISSION NUTRITION**  
**CLUB NEXT QUARTER!**

**Remember:**  
**DON'T EAT BECAUSE**  
**YOU ARE BORED!**



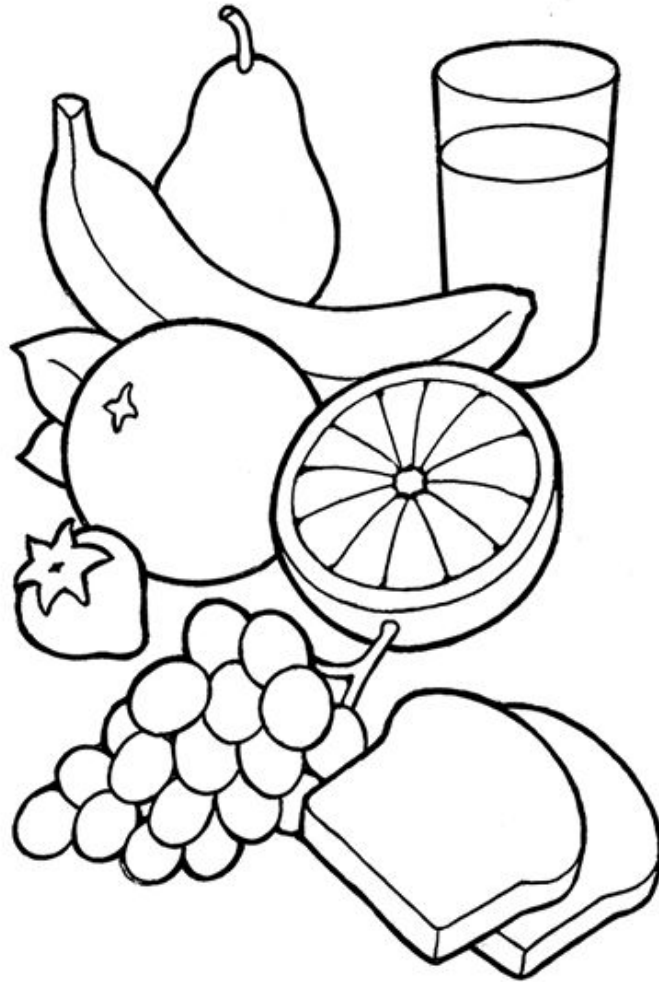
**JOIN MISSION NUTRITION**  
**CLUB next quarter!**

**Remember:**  
**DRINK LOTS OF**  
**WATER!**



**JOIN MISSION NUTRITION**  
**CLUB NEXT QUARTER!**

**Remember:**  
**DON'T SKIP MEALS!**



**JOIN MISSION NUTRITION**  
**CLUB next quarter!**

# Mission Nutrition, Lesson Plan 6 (3rd-5th)

## Review Day and Club Survey

### Summary

1. Subject: Review game and student survey
2. Grades: 3rd, 4th, and 5th
3. Objective: To review what we have learned over the last five weeks through a game of Jeopardy! and take a short survey.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. Hopefully, the students have learned a lot and had plenty of fun over the last five weeks. Now it is time to figure out how much of that information they retained.

#### Procedure

- a. Oatmeal chocolate chip cookies (5 min)
  - While students are sitting at their seats, pass out a certain number of cookies.
  - As the students eat, explain the rules of Jeopardy!
- b. Jeopardy! (30 min)
  - Before the students arrive, have the Jeopardy! table written on the board as follows:

Food Groups	Learning Portions	Healthy Choices	Nutrients	Exercise
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

- Have one volunteer (the “judge”) prompting the groups and keeping track of points and another volunteer reading the questions and answers (separate document).
  - All other hands should be managing situations or sitting with kids.
- Divide the students into 2 or more groups with a maximum of 5 people; let them pick team names.
  - If they cannot decide on a name, assign them a color.
- Rules:
  - Choose a category and points number.
  - Once the question is finished being read, anyone in a group can hit the buzzer (so the buzzer should be within reach of everyone).
  - The first team to hit their buzzer gets to answer first.
    - The judge decides who hit their buzzer first; there will be no arguing with the judge.
  - The team will have 10 seconds to decide on a final answer.
  - If time runs out or they answer incorrectly, the second group that hit their buzzer gets a chance to answer (if you can’t remember, go once to the right).
    - They also have 10 seconds
    - No going back to groups
  - The team that answers correctly gets to pick the next question.
  - Remind the students that they should not shout out the answers. That just helps the other teams.
  - There will be prizes, but not everyone will get one.
    - Tell students that the younger groups have done really well with this, and you expect them to do so, too.
  - \*For questions with multiple parts (e.g., five food groups), teams should be given points based on how many parts they guessed correctly (e.g., 3/5ths if guess 3 out of 5).
- c. Student Survey (10 min)
  - Pass out the surveys and immediately tell them to not write their names on it.
  - Ask the students to fill out the survey as honestly as possible and that they can write “none” or “I don’t know” if they need to.
- e. Clean-up (3 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week

---

## Materials & Resources

a. Instructional Materials:

- Lesson plan
- Jeopardy! questions sheet
- Club surveys
- Handout of the week

b. Resources:

- Snack:  
<http://amyshealthybaking.com/blog/2014/11/30/the-ultimate-healthy-soft-chewy-oat-meal-raisin-cookies/>
  - Use mini chocolate chips instead of raisins
  - Use honey instead of agave
  - Half the cinnamon
- Plates and napkins
- Buzzers
- Prizes and stickers
- Writing utensils





Helpful info  
from the  
creator of  
Mission  
Nutrition:

# HEALTHY FEEDING PRACTICES

**vs.**

# CONTROLLING FEEDING PRACTICES

As a parent, you know that feeding children can be tricky sometimes. It is important to keep in mind your goal: raising a healthy, happy child. By using Healthy Feeding Practices versus Controlling Feeding Practices, you can ensure that your child has healthy eating habits all of their life.

## What are Healthy Feeding Practices?

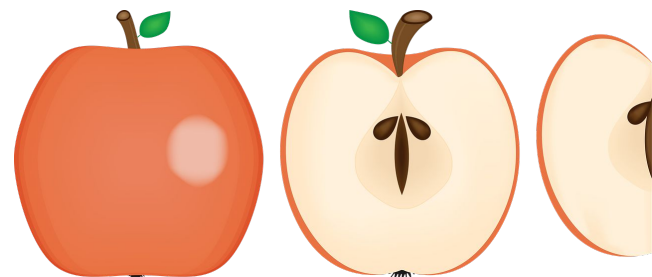
Healthy Feeding Practices are those that support healthy eating habits for young children. Some examples are:

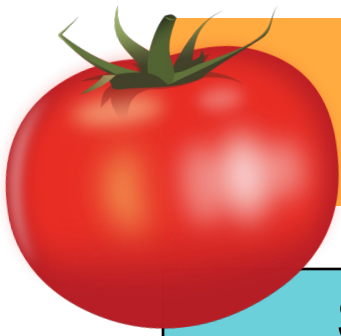
- Eating with children at a dinner table
- Keeping plenty of fruits and vegetables available to children
- Modeling healthy eating behaviors
- Letting children serve themselves and decide how much they want
- Allowing a child to decide when they are full

## What are Controlling Feeding Practices?

Controlling Feeding Practices are those that have a negative impact on a child's eating habits. Some examples are:

- Hiding food from children
- Forcing a child to "clean" his or her plate
- Not letting children eat one food until they have eaten a different food
- Making children try new foods when they don't want to
- Rewarding children with sweets





# PRACTICING HEALTHY FEEDING PRACTICES

Say THIS	Not THAT
"Are you full?"	"Are you done?"
"Does it make your tummy happy?"	"Let's see you make a happy [clean] plate."
"It is okay to not eat if you are full. But you should eat now if you are hungry."	"You did not eat anything and you will be hungry later. Eat something now."
"Start with one scoop, and if you are hungry later you can have more."	"Don't take two scoops. Take one scoop, okay?"
"Does your body have what it needs?"	"Hurry up, it's time to go. Lunchtime is over."
"If you are full, you don't need to keep eating now."	"You ate a lot. Your tummy will hurt if you eat more."
"We should eat when we are hungry and we can stop eating when our tummy is full. It is okay to stop eating if you are full, even if there is food left on your plate."	"We cannot waste food by leaving any on our plates. Let's make a happy (clean) plate"
"You can touch and smell the section of orange first to see if you might like to try it. You don't have to eat it. You can try it next time."	"Can you put a little tiny bit on your plate? Just try it, please."

Table and information adapted from McBride, B. A., & Dev, D. A. (2014). *Preventing Childhood Obesity: Strategies to Help Preschoolers Develop Healthy Eating Habits*.

## Review Jeopardy!

- Divide the students into 2 or more groups with a maximum of 5 people; let them pick team names.
  - If they cannot decide on a name, assign them a color.
- Write team names on the board with room to keep track of points.
- Pass out the buzzers, but instruct the students to not touch them yet.
- Read the following instructions to the students:

“Our 5 Jeopardy! categories represent each of the last 5 weeks of club. Each category has questions that get harder as they are worth more points. The first team will choose a category and the value of the question. [Volunteer name] will then read the question and only when she is completely done reading can any team hit their buzzer.

“The first team to hit their buzzer gets to say their answer first, but they only have 10 seconds to do so. We will be the judges of what sound we heard first, so there is no arguing. The buzzer should stay in the middle of all of the group members so that any member who knows the answer can hit it. You should only hit the buzzer if you know the answer! Each team will only have one chance to answer the question, so it is important that you are sure of your answer before you hit the buzzer. The team that answers the question correctly will get to choose the next one and if the question is not answered correctly, the last team to pick will pick again. Remember to not shout out the answers; that will only help the other teams. When we have finished all of the questions or we run out of time, the team with the most points will get to pick prizes from the box, so if you want a prize you need to try. We are not going to cry if we do not win. Are there any questions?”

### Food Groups

1. What food group is rice in?
  - a. Grains
2. What are the five food groups?
  - a. Fruit, Vegetables, Dairy, Protein, Grains
3. Give two examples of protein foods.
  - a. Chicken, beef, pork, nuts (peanuts, almonds, pecans, etc.), beans, fish, tofu, etc.
4. True or false: drinking 100% fruit juice can count as a serving of fruit.
  - a. True
5. What are the five subgroups of vegetables?
  - a. Green leafy, red/orange, starches, legumes, & other

**Learning Portions**

1. What food group do eggs belong in?
  - a. Protein
2. What 2 food groups do beans fit into?
  - a. Protein and vegetables
3. True or false: a measuring cup and a drinking cup hold the same amount of liquid.
  - a. False; drinking cups hold varying amounts (generally more).
4. Three ounces of cooked chicken is approximately the same size as what common household object?
  - a. A deck of cards
5. How many ounces of protein should the average person eat every day?
  - a. 5.5 oz

**Healthy Choices**

1. What is a great beverage to drink throughout the day?
  - a. Water or milk
2. True or False? You always have to order a healthy option at a restaurant.
  - a. False. It is okay to order something unhealthy (a yellow or red light food) every once in a while.
3. Which is better for you 100% Orange Juice or Pink Lemonade?
  - a. Orange juice
4. How many calories does one bottle of water have?
  - a. 0
5. Give an example of a nutrient that people in America should eat less of.
  - a. Fats, sugar, or sodium

**Nutrients**

1. What nutrient are chicken, beans, and fish a good source of?
  - a. Protein
2. What vitamin helps calcium build bones?
  - a. Vit. D
3. What is found in grains, fruits, and vegetables that helps you digest food?
  - a. Fiber
4. Give one example of a macronutrient?
  - a. Carbohydrates, protein, lipids (fats/oils), or water
5. What are the 2 categories of micronutrients?
  - a. Vitamins and Minerals

**Exercise/Eating Habits**

1. What is the minimum amount of minutes you (kids) should spend being physically active every day?
  - a. 60 minutes
2. Is it better to use small plates or big plates?
  - a. Small
  - b. Bonus: why? (for 100 points)
    - i. Because you are less likely to take too large of portions.
3. Should you stretch before or after exercising?
  - a. AFTER
  - b. Bonus: why? (for 100 points)
    - i. Because if you stretch before you are more likely to pull a muscle.
4. What does it mean to portion out your snacks?
  - a. To set some aside in a separate bag or bowl from the original container. It helps you know how much you are eating.
5. What are three benefits of exercise/physical activity?
  - a. Strengthens the heart, muscles, and bones; helps you sleep; improves mood; prevents disease; controls weight.

**SET UP:**

Food Groups	MyPlate	Healthy Choices	Nutrients	Exercise
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

\*Number of the question indicates the points it is worth (question 1 is worth 100 points)

\*For questions with multiple parts (e.g., five food groups), teams should be given points based on how many parts they guessed correctly (e.g., 3/5ths if guess 3 out of 5).

## Survey for Mission Nutrition Club

Directions: answer the following questions anonymously, honestly, and completely for a sticker!

1. What was your favorite activity from the last six weeks of Mission Nutrition? (Food BINGO!, food group relay, five corners, portions matching worksheet, sugar baggies activity, restaurant discussion, nutrient worksheet, vitamins & minerals game, nutrition label matching game, exercising, coloring posters, or Jeopardy!)
2. What was your least favorite activity?
3. What was your favorite snack? (Taste test, Fruity Grahams, fruit kebabs, fruit smoothies, hummus & pita chips, or cookies)
4. What was your least favorite snack?
5. Did you talk about what we did and learned in club with your parents?  
Did you share the handouts and activities with them?
6. Have you or your family changed any of your eating habits because of this club?

## Appendix B: Kindergarten through Second Grade Curriculum

# Mission Nutrition, Lesson Plan 1 (K-2nd)

## Introduction to Food Groups

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### Summary

1. Subject: Food Groups
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To teach the students how the five food groups are classified, what kinds of food they include, and how much of each they should eat every day.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. The students may or may not be familiar with the five food groups and what foods are included in each. While they may have heard of the recommended daily servings, it is unlikely that they have them memorized or understand what the different serving sizes look like (see Lesson 2).

#### Procedure

- a. Introductions (5 min)
  - Ask the students to share their names and their favorite foods. Start with yourself and the other volunteers.
- b. Taste Test (10 min, seconds can overlap with discussion)
  - Have 3-4 kinds of less common fruits and veggies (see “Resources” at the bottom) prepared and lined up buffet-style
    - Allow the students to take a certain amount of each
    - Ask them to wait to eat until we all can try them together
    - Encourage students to try the different foods, but do not force them to
  - Ask the students to share their experiences with each food (one at a time)
    - Ask about:
      - Texture (crisp, mushy, chewy, etc.)
      - Flavor (sour, sweet, savory, etc.)



- “Does this remind you of a different food?”
- c. Discussion (10 min)
  - Ask: “Who knows the five food groups?”
    - Write them on the board as the students answer
  - Food groups: write the recommended daily servings on the board. After describing each group, ask the students to share examples.
    - Fruits: 2 cups
      - Definition: “Sweet and fleshy product of a tree or other plant that contains a seed and can be eaten as food”
      - 100% fruit juice counts as a serving of fruit
    - Veggies: 2.5 cups
      - Definition: “Anything that is a root, stem, or leaf of a plant”
    - Dairy: 3 cups
      - Definition: “Foods high in calcium; most are made from milk”
    - Grains: 6 ounces
      - Definition: “Wheat or any other cultivated cereal crop used as food”
    - Protein: 5.5 ounces
      - Definition: “All foods made from meat, poultry, seafood, beans and peas, eggs, processed soy products, nuts, and seeds”
- d. Food BINGO! (20 min)
  - As volunteers pass out BINGO! sheets and beans, ask “Does anyone not know how to play BINGO?”
    - If anyone raises their hand, explain the rules:
      - “If you look at the papers we are passing out, you will see that there are five columns; each represents a different food group. I will draw pictures of foods that match the foods on your BINGO! sheet. As I call out the foods, you can find the picture of the matching food on your sheet and place a bean on top of it. Once you have place beans on five foods that line up (either left to right, up and down, or between the corners), you can call out “BINGO!” We will then come check your card and give you either a small container of bubbles or a sticker (if you have already won before). Not every food called will be on your sheet. The MyPlate icon in the center is a “free space” and you can go ahead and put a bean on that now. Does anyone have questions?”
  - Draw & call foods (show them the picture if they need it)
    - Consider asking students to shout out the food group that each food goes in as you call them

- Repeat the game until time runs out, reminding students to clear their cards of beans between each game
- e. Clean-up (3 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week

## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - Copies of Food BINGO! sheets
    - And drawing cards
  - Handout of the week
- b. Resources:
  - Snack: 3-4 less common fruits and vegetables (already washed and cut up)
    - Kiwis
    - Multi-colored carrots
    - Sweet peppers
    - Pomegranates
    - Jicama (with ranch)
    - Special apples or pears
    - Mangoes
  - Plates and napkins
  - Food BINGO sheets & cards
  - Crayons
  - Beans (for covering BINGO! spaces)
  - Bubbles/stickers



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing Food Groups!

This week we learned about the 5 food groups, what they include, and how much to eat of each.



- Includes plant parts such as leaves, roots, and stems.
- Tomatoes, cucumbers, and squash are technically fruits, but are considered vegetables in nutrition.
- You should eat 2.5 cups every day!



- Includes plant parts that contain seeds.
- It is best to consume whole fruits, but 100% fruit juice is good, too.
- Like all foods, it is best to get a wide variety of fruits.
- You should eat 2 cups every day!



- Includes whole grains and refined grains.
- Whole grain products include certain breads and cereals, popcorn, and brown rice.
- You should eat 6 ounces every day! (1 ounce = 1 slice of bread)
  - Make half of your grains whole grains.



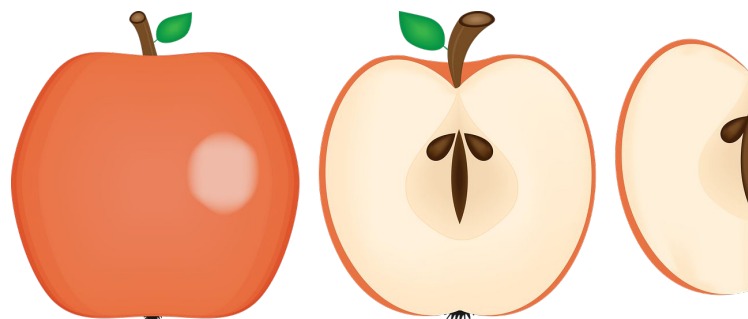
- Includes dairy products as well as soy milk.
- Sour cream, butter, and cream cheese have very little calcium and do not count towards daily servings.
- You should eat 3 cups every day!



- Includes animal products (besides milk) as well as beans and nuts.
  - Eggs are included in the protein group (not the dairy group).
- It is best to limit processed meats such as sausage, ham, and hot dogs.
- You should eat 5.5 ounces every day!
  - 3 ounces is the same size as 1 deck of cards

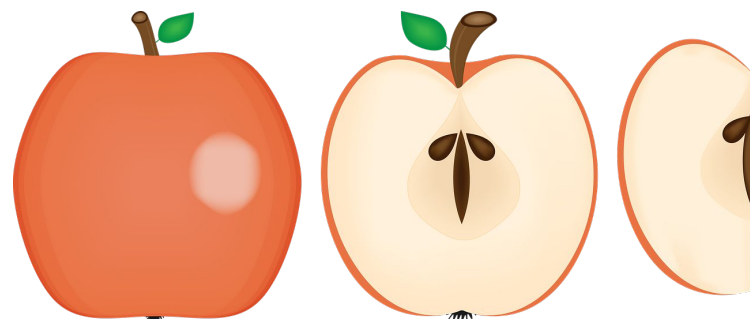
\*Recommended daily servings are based on a 2,000 Calorie diet.

For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# HEALTHY SNACK IDEAS FOR YOU AND YOUR FAMILY

- Peanut butter and apple slices
- Hummus with carrots, celery, and bell peppers
- Whole grain crackers with cheese
- Smoothies made from:
  - Any fresh or frozen fruit (no sugar added)
  - Spinach and/or kale
  - Low fat yogurt, any flavor
  - Milk or 100% fruit juice
- Unbuttered popcorn with peanut butter chips
- Avocado spread on whole wheat toast
- Sugar snap peas and mandarin oranges
- Low fat, vanilla yogurt with fresh berries
- Unsalted dry roasted almonds
- Dried cranberries and apricots
- Turkey and swiss roll-ups



# Mission Nutrition, Lesson Plan 2 (K-2nd)

## Learning Portions

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### Summary

1. Subject: Portions
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To teach the students the recommended servings for each food group and what a serving looks like using common household objects.
4. Time Allotment: 50 minutes

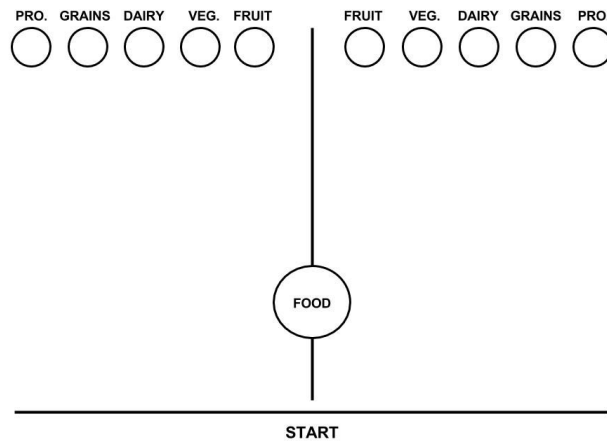
### Implementation

#### Learning Context

- a. In the previous lesson, we talked about the five food groups and how much to eat of each. In this lesson, we will discuss recommended daily servings and what these actually look like. Students will likely have very limited knowledge of the serving sizes and proper portions.

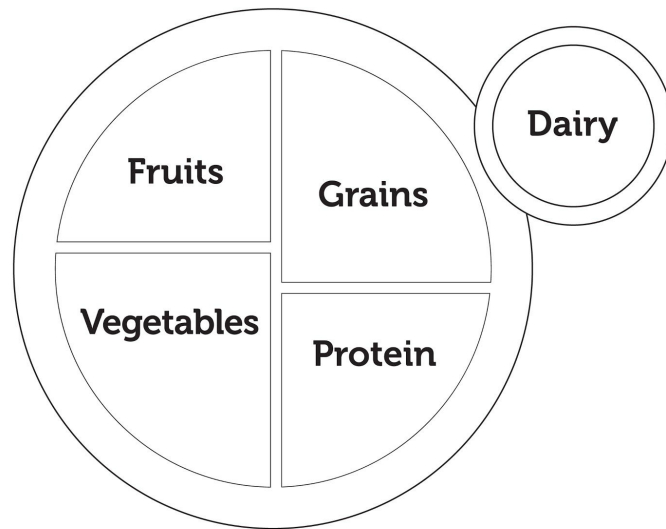
#### Procedure

- a. Food group relay (10 min)
  - Set up plates, signs, and basket of plastic fruits according to the diagram below:



1. Designate two sets of five food group stations on each side of the room
  2. Divide participants into two equal teams and have each team form a line
  3. Place a basket of food models from each of the food groups in the middle of the two groups.
  4. Instruct participants to make a single-file line and run to grab a food from the basket then run and place it at the appropriate food group station
  5. Participants should then run back and gently tag the next team member in line.
  6. The team with the most items sorted correctly when items run out wins!
- b. Fruity Grahams (10 min)
- Show the students how to make the “Fruity Grahams”
  - Have the students line up a few at a time and allow them to make a certain number of grahams
- c. Food Group Review (5 min)
- Ask the students to recall the five food groups and the recommended servings per day (write both on the board).
    - Grains: 6 ounces
    - Protein: 5.5 ounces
    - Fruit: 2 cups
    - Veggies: 2.5 cups
    - Dairy: 3 cups
- d. Portion Sizes Discussion (15 min)
- Ask the students if they know what the MyPlate servings mean
    - Explain that each is a measure of how much food we have on our plates
  - Measuring cups
    - Explain that measuring cups measure volume, which is used to tell amounts for most fruits, vegetables, and dairy products

- Ask the students if they have ever used measuring cups when cooking or baking
    - Explain that measuring cups can be used to measure all types of food
  - Fill up the 1 cup measuring cup with beans, pour in a drinking glass
    - Show the students that “a cup” does NOT equal “1 cup”
    - Explain that, usually, a drinking glass holds more than a standard cup and that a full glass of, say, orange juice, is almost 2 cups
  - Pass out the “Matching Portions” worksheet
    - Have a student read the directions and instruct children to write their names at the top
    - Children should draw a line from the food to the portion size example
    - The other volunteers should sit with children and help them follow along
  - Show the students each object and explain what it can be compared to in order to tell how much we are eating (do NOT pass them around).
    - Deck of cards = 3 oz cooked meat
    - Tennis ball = 1 cup of rice, pasta, or ice cream
    - Baseball = medium fruit = 1 cup of fruit
    - Golfball = 2 tbsp peanut butter = 2 ounces of protein
    - 1 CD-ROM = 1 slice of bread = 1 ounce of grains
- e. MyPlate Word Game (5 min)
- If there is extra time, try playing this quick game, like “Hangman”:
    - Write a certain number of blanks on the board that corresponds to a specific food (e.g., tomatoes).
    - Go around the room and have each student guess one letter, trying to fill in the blanks for the word.
      - For every letter guessed correctly (e.g., “T”), fill in the corresponding blanks (e.g., T \_ \_ \_ t \_ \_ \_).
      - For every letter guessed incorrectly (e.g., “P”), write that letter in a separate spot on the board and draw one of the components of MyPlate (e.g., the largest circle, then the smaller one, then each of the wedges, then the names of the groups).



- Students are not allowed to shout out letters or guess the word. Keep going around the room until either the word is complete or you have drawn all of the components of MyPlate.
    - Ask the students which food group the word belongs in.
  - Try longer words that offer variety, like:
    - Eggplant
    - Peanuts
    - Watermelon
    - Porkchop
    - Cauliflower
    - Chocolate milk
    - Tortillas
    - Blueberries
    - Pancakes
    - Spinach
- f. Clean-up (3 min)
- g. Closing (2 min)
- Have the students line up according to after school plan
  - Give them the handout of the week and “Fruity Grahams” recipe



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## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - “Matching Portions” worksheets
  - Handout of the week
  - “Fruity Grahams” recipe cards
- b. Resources:
  - Snack: graham crackers, vanilla yogurt, and cut strawberries and blueberries; plates and napkins
  - Demonstration materials: Tennis ball, Baseball, Golf ball, Dice, Cards, CD-ROM, Measuring cups, Beans, Drinking cup, Bowl, & Plate
  - Food models from each of the food groups (for relay race)
  - Signs & plates for food group stations (for relay race)



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Proper Portion Sizes!

This week we learned about the recommended daily serving sizes and what they look like.

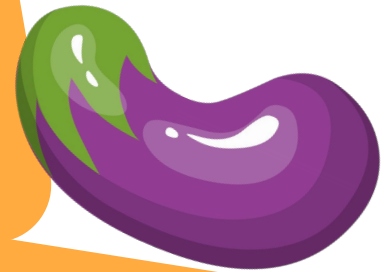
Not all serving sizes can be measured in cups and ounces. To sort it all out, here are some tips:

- 1 ounce of grains is equal to:
  - 1 slice bread
  - 1 small (2.4 inch diameter) muffin
  - 1 cup cold cereal
  - 1/2 cup cooked cereal, rice, grains, or pasta
  - 1 6 inch tortilla
- 1 cup of dairy is equal to:
  - 1/2 cup ricotta cheese
  - 1.5 oz natural cheese
  - 2 oz processed cheese
  - 1 cup milk, yogurt, or ice cream
- 1 ounce of protein is equal to:
  - 1 ounce cooked meat, fish, or poultry
  - 1/4 cup beans or tofu
  - 1 egg
  - 1 tablespoon nut butter
  - 1/2 ounce nuts or seeds
- 1 cup of fruit is equal to:
  - 1 medium fruit
  - 3/4 cup fruit juice

Food Group	Recommended daily servings*
Fruits	2 cups
Vegetables	2.5 cups
Dairy	3 cups
Grains	6 ounces
Protein	5.5 ounces

### Remember:

Different ages and genders need different portion sizes. Letting children serve themselves can help teach them portion control.

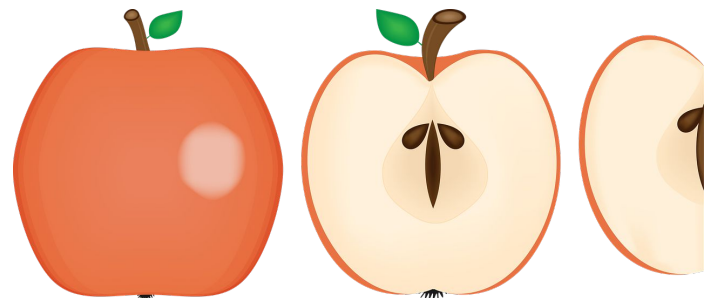


### Remember:

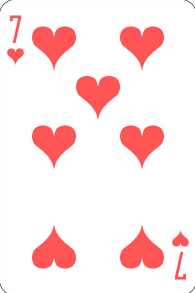


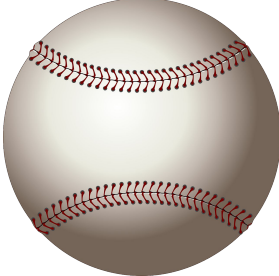

Children naturally know when they are full. Don't force a child to clean his or her plate.

\*Recommended daily servings are based on a 2,000 Calorie diet.

For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# SERVING SIZE COMPARISONS USING EVERYDAY OBJECTS

Object	Comparable to	Another Equivalent
	3 ounces of cooked meat	The palm of your hand
	1 slice of bread (1 ounce of grains)	An open hand
	1 cup of rice, pasta, fruits, or vegetables	A closed fist
	1 medium apple, orange, peach, etc. (1 cup of fruit)	A closed fist
	2 Tablespoons of nut butter (2 ounces of protein)	Two thumbs

# FRUITY GRAHAMS

## Ingredients

- 6 graham crackers broken in half
- 3/4 cup nonfat vanilla yogurt
- 2 cups berries, any type

## Directions

1. Take 1 half piece of graham cracker
2. Scoop about 1 Tbsp of yogurt on top and spread around
3. Top with your favorite berries in fun patterns or shapes
4. Repeat with the rest of the crackers



MISSION  
NUTRITION

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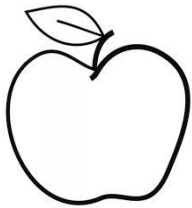


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Name: \_\_\_\_\_

# Matching Portions

Directions: draw a line from the food to the item that matches it as we talk about them.



1 medium apple



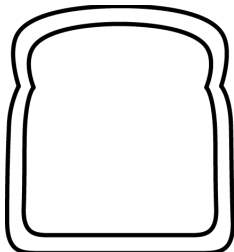
1 cup of rice



3 ounces of chicken



2 Tablespoons of peanut butter



1 slice of bread



1 CD-ROM



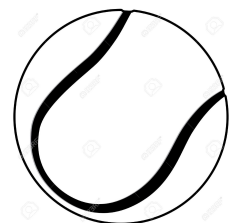
1 deck of cards



1 baseball



1 golf ball



1 tennis ball

# Mission Nutrition, Lesson Plan 3 (K-2nd)

## MyPlate

### Summary

1. Subject: MyPlate
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To teach the students what MyPlate is and how to use it.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. In most schools, MyPlate has already been introduced. In this lesson, we will expand upon it to discuss recommended daily servings and what these actually look like.



#### Procedure

- a. Five corners (10 min)
  - In the classroom or the gym, hang up posters or set signs around the room
  - Explain to students:
    - “When I call a food, you will walk to the station you think the food fits in: fruits, vegetables, dairy, grains, or protein”
    - There are no winners or losers; this is just for fun (no one gets “out”)
  - Draw Food BINGO! cards from a baggie and call them out. After all the children decide on a food group, tell them the correct answer.
  - Call as many foods as possible before time runs out.
- b. Fruit Kebabs (7 min)
  - Show students an example of a fruit kebab.
    - Remind them to hold it sideways while putting on fruit to prevent them from poking themselves.
  - Dismiss a few students at a time to make their kebabs.
    - Remind them that there is no fighting with or breaking the sticks (otherwise there will be no smoothies next week).

- c. MyPlate Discussion (3 min)
  - Ask the students to recall the five food groups and the recommended servings per day (write both on the board).
    - Grains: 6 ounces
    - Protein: 5.5 ounces
    - Fruit: 2 cups
    - Veggies: 2.5 cups
    - Dairy: 3 cups
- d. MyPlate Collage (20 min)
  - Hang the example placemat on the board
  - Let the students pick a 12x18 inch colored construction paper background
    - Have the students cut out the MyPlates and dairy cup and glue in them in the middle of the page (preferred: have them prepared beforehand to save time)
    - Write recommended servings of food groups around the MyPlate and dairy cup and “[Student’s name]’s MyPlate” on top
  - Cut out pictures of healthy foods for the magazines and glue in the right group
    - Fill the plate with pictures
  - If food can go in more than one food group, the picture can overlap between groups
- e. Clean-up (8 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week

## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - Handout of the week
- b. Resources:
  - Snack: pre-cut melons, pineapple, apples, strawberries, and/or grapes; kebab sticks; plates and napkins
  - Example placemat
  - MyPlate templates (cut out and glued on backgrounds with servings/food groups written around, if possible)
  - 12x18 colored construction paper

- 
- Scissors & glue sticks
  - Black markers (for writing names on the top)
  - Magazines (flip through and remove any inappropriate pictures beforehand)
  - Food group signs (for “Five Corners”)
  - Masking tape for signs (if needed)
  - BINGO! cards
- 



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing MyPlate!



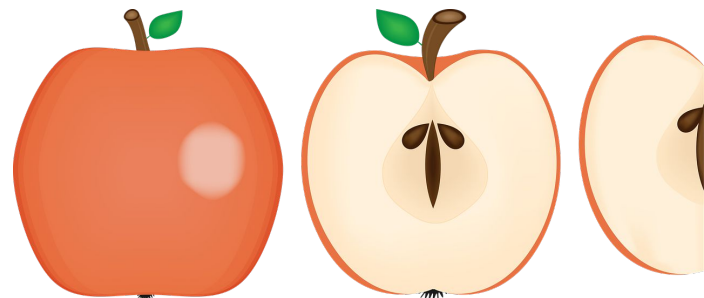
This week we learned about MyPlate and how to use it, the recommended daily servings for each food group, and what those serving sizes look like.

- Notice on MyPlate that the Vegetables and Grains groups are larger than the Fruits and Protein groups.
- Be sure to make half of your plate fruits and veggies!
- MyPlate is meant to be used as a general guide for each meal.
  - Separate recommended serving sizes are meant to guide how much you eat over the whole day.

Food Group	Recommended daily servings*	Tips
Fruits	2 cups	Focus on whole fruits
Vegetables	2.5 cups	Get a wide variety
Dairy	3 cups	Limit high-sugar dairy products
Grains	6 ounces	Make half your grains whole grains
Protein	5.5 ounces	Limit processed meats

\*Recommended daily servings are based on a 2,000 Calorie diet.

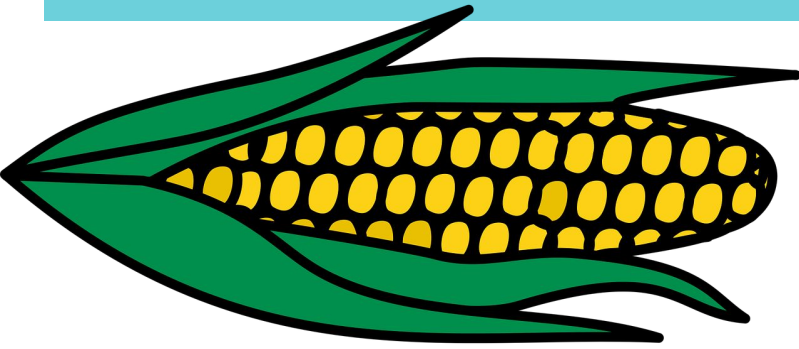
For more information on the five food groups, MyPlate, and living a healthy lifestyle visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)



# TRY SOME NEW VEGGIES THIS WEEK!

## Did you know?

There are 5 subgroups of vegetables, and you should aim to eat from each subgroup every week!



### Dark Green Vegetables

Bok choy  
Broccoli  
Collard greens  
Kale

Leafy lettuce  
Parley  
Romaine lettuce  
Spinach

### Starchy Vegetables

Corn  
Green peas  
Green lima  
beans  
Jicama

Parsnips  
Potatoes  
Taro  
Water chestnuts

### Red and Orange Vegetables

Acorn squash  
Butternut  
squash  
Carrots

Pumpkin  
Red peppers  
Sweet potatoes  
Tomatoes

### Beans and Peas

Black beans  
Black-eyed peas  
Garbanzo beans  
(chickpeas)  
Great northern  
Kidney beans  
Lentils

Mung beans  
Pinto beans  
Red beans  
Soy beans  
Split peas  
White beans

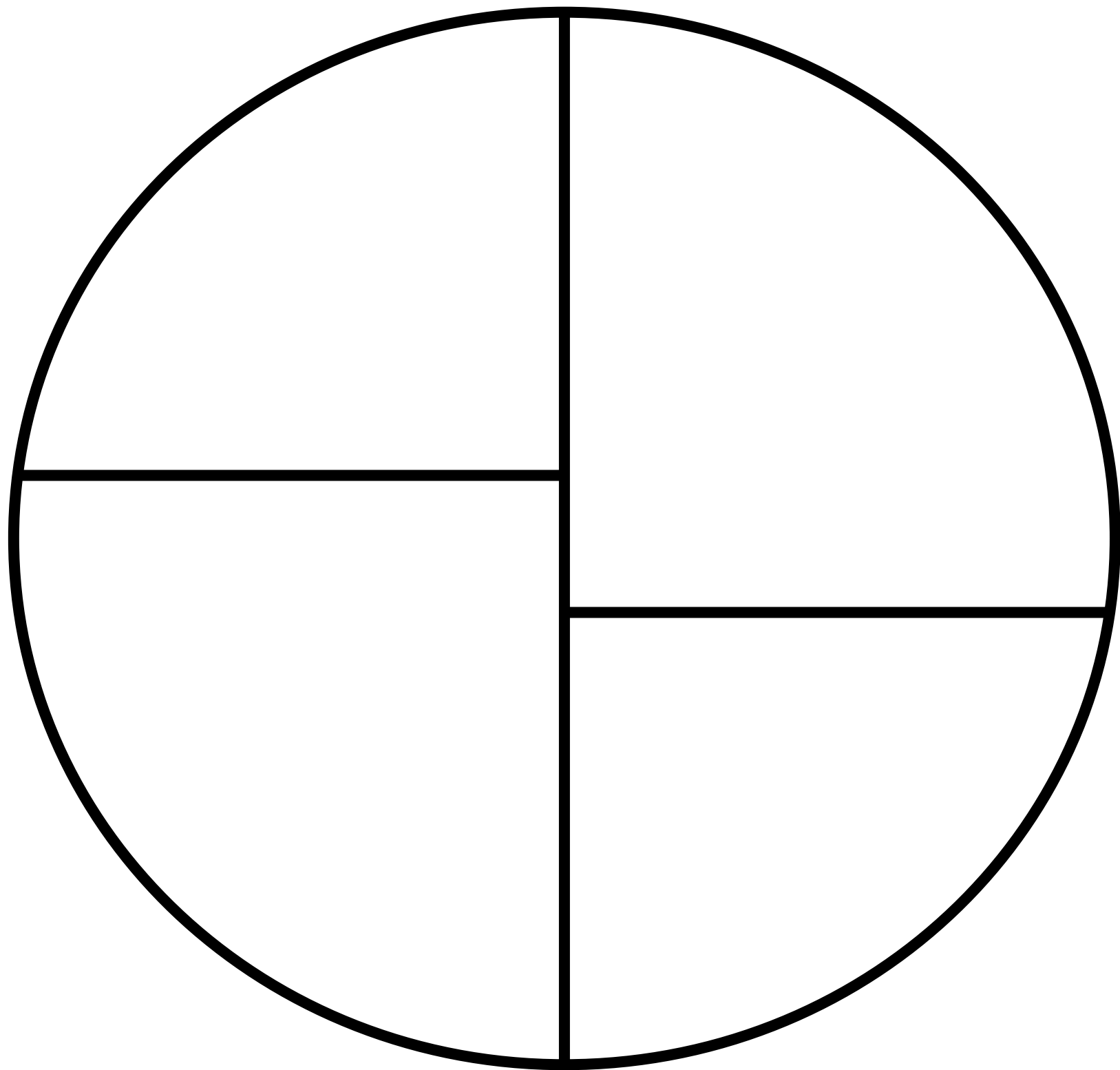
### “Other” Vegetables

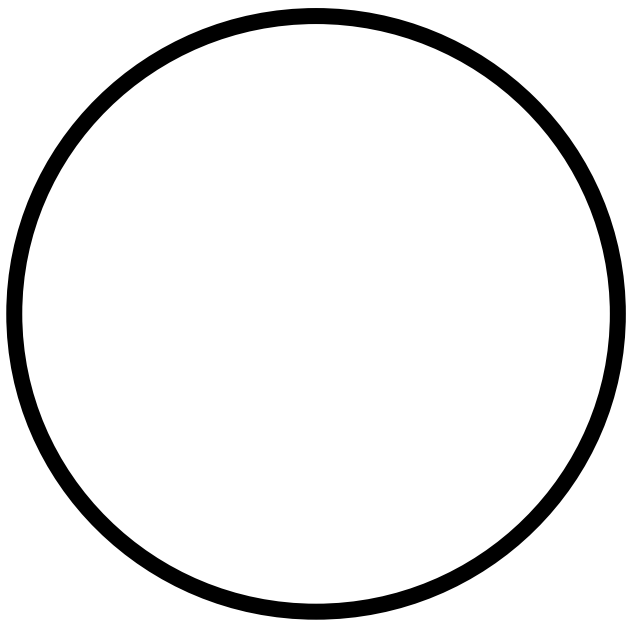
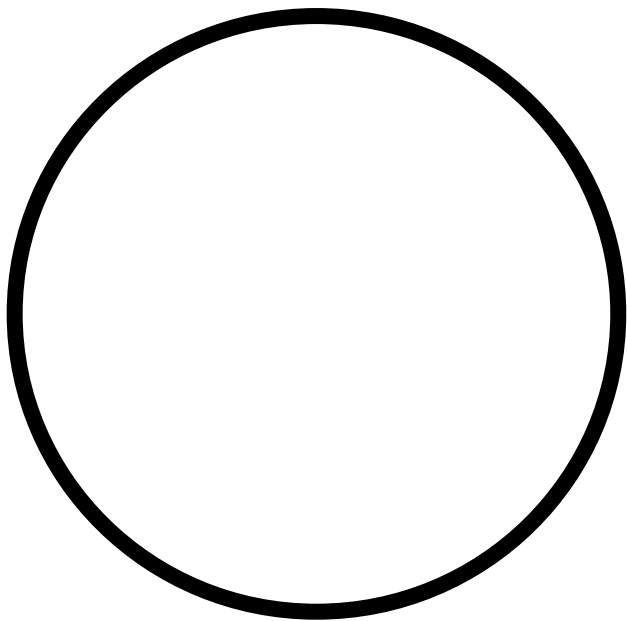
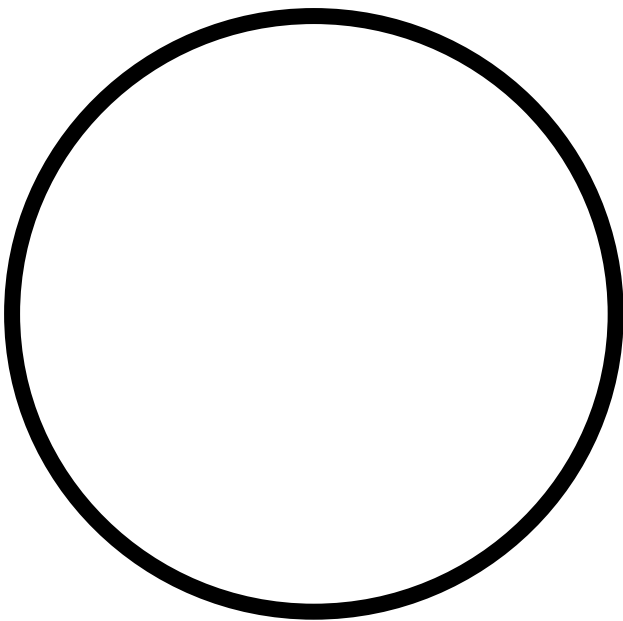
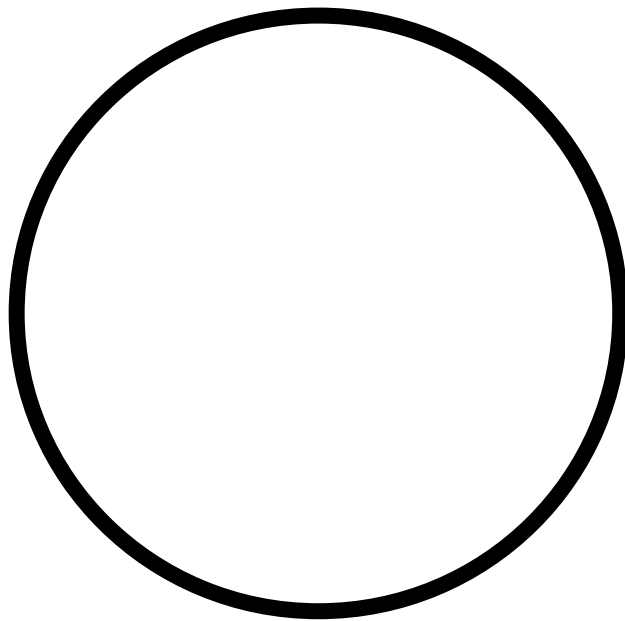
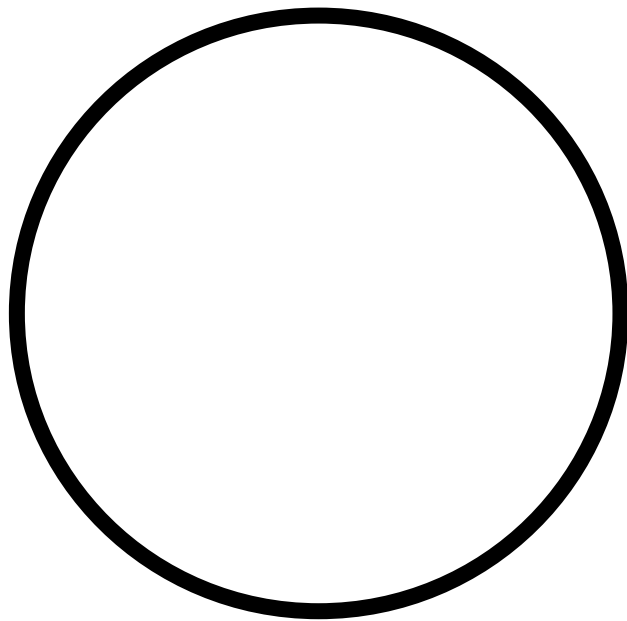
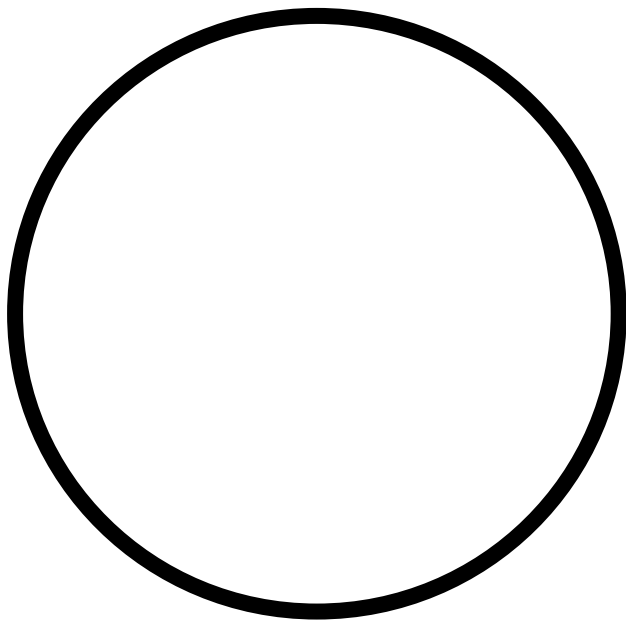
Artichokes  
Asparagus  
Avocado  
Bean sprouts  
Beets  
Brussel sprouts  
Cabbage  
Cactus  
Cauliflower  
Celery  
Cucumbers  
Eggplant

Green beans  
Green peppers  
Iceberg lettuce  
Kohlrabi  
Mushrooms  
Okra  
Olives  
Onions  
Radishes  
Turnips  
Zucchini

\*Information adapted from:  
Illinois State Board of Education  
[www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov)







# Mission Nutrition, Lesson Plan 4 (K-2nd)

## Making Healthy Choices

---

### Summary

1. Subject: Making healthy choices
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To teach the students the difference between healthy foods and “sometimes foods” using the “Green-light, Yellow-light, Red-light” model and how to apply this skill to real-life situations.
4. Time Allotment: 50 minutes

### Implementation

#### Learning Context

- a. The students may have been taught or already understand what “sometimes foods” are. In this lesson, however, we are going to take it a step further and teach them about “Green-light, Yellow-light, and Red-light” foods.

#### Procedure

- a. Red Light, Green Light (10 min)
  - First, explain to the children that there are 3 types of food:
    - These lights can also help us remember which foods are healthy, less healthy, and unhealthy.
    - “Green light” foods are foods that are good for you and you should eat all the time.
    - “Yellow light” foods aren’t necessarily unhealthy, but there are better options than “red light” foods. These foods you should eat less of than “green light” foods.
    - “Red light” foods are ones that you should only eat on special occasions.
    - We will only be playing with red and green light foods.
  - Give examples of red and green light foods from the chart at the bottom of the lesson plan.

- Play “Red Light, Green Light.”
  - All of the kids line up along the wall.
  - When you want the kids to run, call out a “green light” food.
  - When you want the kids to stop, call out a “red light” food.
  - If the kids do not stop when you call a red light food, they must go back to the wall and start again.
  - When the kids reach the opposite wall, they get high-fives.
  - After everyone has reached the wall, play again.
- b. Fruit Smoothies (5 min)
  - Have fruit smoothies prepared beforehand, according to the recipe.
  - Pass out small cups, reminding the students to be very careful and not spill.
  - You can start reading the book while they drink.
- c. Story Time (10 min)
  - Remind the students of red, green, and yellow light foods (see above).
  - Read “A Tale of Two Brothers: A Rhyming Story About Making Healthy Choices”
  - As you go along, point out the different foods the brothers are eating. Ask if they are red light or green light foods.
- d. Restaurant Activity (20 min)
  - Split into small groups. Pass around menus for “America’s Diner.”
  - Discuss with students:
    - “What would you normally order?”
    - “Do you know what a red light means? A green light? Yellow?”
    - “These lights can also help us remember which foods are healthy, mediocre, and unhealthy”
      - “Green light” foods are foods that are good for you and you should eat all the time
      - “Yellow light” foods aren’t necessarily unhealthy, but there are better options than “red light” foods. These foods you should eat less of than “green light” foods
      - “Red light” foods are ones that you should only eat on occasion.
        - Explain that when we say “on occasion” we mean only a few times a week.
    - “Which foods in this section of the menu are healthy, “green light” foods?”
      - Highlight or circle them with a green crayon
      - Repeat for yellow, then red in each menu section (e.g., appetizers, entrees, beverages)
  - Ask them to make a meal, individually, that has 3 “green light” foods, 1 “yellow light” food, and 1 “red light” food (one from each section of the menu).

- e. Clean-up (3 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week and “Fruit Smoothies” recipe

## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - “America’s Diner” menus
  - Handout of the week
  - “Fruit Smoothies” recipe card
- b. Resources:
  - Smoothies: frozen mixed fruit, a banana or two, 100% orange juice, vanilla yogurt
    - Blender
    - Cups
    - Napkins
  - Many red, green, and yellow crayons





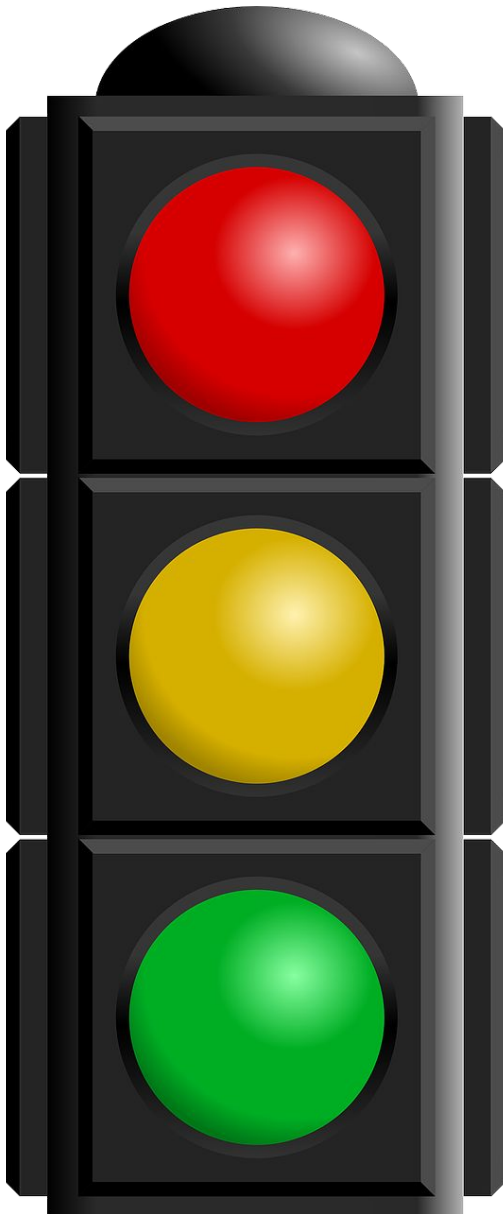
<b>Red Light Foods</b>	<b>Green Light Foods</b>
French fries	Bananas
Ice cream	Salad
Doughnuts	Whole grain bread
Soda	Milk
Fried chicken	Beans
Chocolate cake	Broccoli
Butter	100% Orange Juice
Hot dogs	Apples
Gravy	Kale
Pop-tarts	Strawberries
Oreos	Asparagus
Pepperoni pizza	Walnuts
Bacon	Tomatoes
Sausage	Baked chicken breasts
Cupcakes	Salmon
Red bull	Almonds
Doritos	Brown rice
Cheetos	Sweet potatoes
Apple pie	Oatmeal



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Making Healthy Choices!

This week we learned how to make healthy choices by using the “Green-light, Yellow-light, Red-light” Model.



### Red-light:

- Red-light foods are ones we should limit to special occasions (birthdays, holidays, etc.).
- This includes food such as
  - High-sugar foods: cake, brownies, and pie
  - Fried foods: corn dogs, fried chicken, and french fries
  - Processed meats: sausage, hot dogs, and pepperoni
  - Fast food

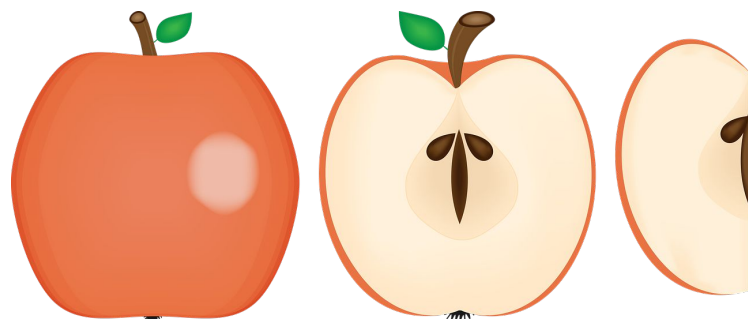
### Yellow-light:

- Yellow-light foods are ones we can include in regular meals, but should still be eaten in moderation.
- This includes food with a mixture of red-light and green-light foods, as well as generally less healthy foods such as
  - Pizza, hamburgers, and grilled cheese

### Green-light:

- Green-light foods are ones we should include in every meal, and they should make up the majority of our plates.
- This includes food such as
  - Fruits and vegetables
  - Whole grains
  - Lean meat
  - Dairy products

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# RETHINK YOUR DRINK!

In a 1 cup (8 ounce) serving of each of the drinks below, there is a varying amount of added sugar.

Number	Drink	Teaspoons of added sugar	Calories
1	Water	0	0
2	Fat-Free Plain Milk	0	83
3	100% OJ	0	122
4	Sports Drink	3	65
5	Fat-Free Chocolate Milk	3	140
6	Soft Drink	5 1/4	91
7	Fruit-Flavored Powder Mix (Kool-Aid)	5 1/2	88
8	Lemonade	5 1/2	114
9	Root Beer	6 1/4	101
10	Fruit Drink (with High Vitamin C; Sunny-D)	7 1/4	128

As you can see, fruit drinks such as Sunny-D have over 7.25 teaspoons of added sugar in every 8 ounces - that is more than 30 grams! Other sodas and lemonade also should be consumed in moderation. It is best to drink water, milk, and 100% juice.

# FRUIT SMOOTHIES

## Ingredients

- 2 cups low-fat vanilla yogurt
- 1 cup 100% fruit juice or skim milk
- 3 cups any fruit (fresh or frozen)

## Directions

- Combine all ingredients in blender until smooth

## Fruit Ideas

- Strawberries and bananas
- Peaches and blueberries
- Raspberries and pineapple
- Kiwis and strawberries
- Try adding some spinach or kale!



**MISSION  
NUTRITION**

# FRUIT SMOOTHIES

## Ingredients

- 2 cups low-fat vanilla yogurt
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## Directions

- Combine all ingredients in blender until smooth

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- Strawberries and bananas
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- Kiwis and strawberries
- Try adding some spinach or kale!



**MISSION  
NUTRITION**



# America's Diner

## **Appetizers**

Chips and salsa  
Mozzarella sticks  
Salad

## **Entrees**

Hamburger/cheeseburger  
Pizza (cheese, pepperoni)  
Chicken fingers (fried or grilled)  
Mini corndogs  
Grilled cheese

**-OR-**

### **Build your own pasta:**

Noodles: bow-ties, spaghetti (whole wheat)  
Sauce: marinara (red), alfredo (white)





## **Sides**

French fries

Fruit salad

Broccoli

Apple sauce

Mashed potatoes and gravy

Celery and carrots

Potato chips

## **Beverages**

Soda (Diet Coke, Sprite, Dr. Pepper, Fanta)

Lemonade

100% Apple juice

Water

Milk (Skim, 2%, whole, chocolate)

## **Desserts**

Oreo shake

Brownie sundae

Ice cream and fresh fruit



# America's Diner

## Appetizers

Chips and salsa

Mozzarella sticks

Salad

## Entrees

Hamburger/cheeseburger

Pizza (cheese, pepperoni)

Chicken fingers (fried or grilled)

Mini corndogs

Grilled cheese

-OR-

## Build your own pasta:

Noodles: (bow-ties, spaghetti (whole wheat))

Sauce: (marinara (red), alfredo (white))





## **Sides**

French fries

Fruit salad

Broccoli

Apple sauce

Mashed potatoes and gravy

Celery and carrots

Potato chips

## **Beverages**

Soda (Diet Coke, Sprite, Dr. Pepper, Fanta)

Lemonade

100% Apple juice

Water

Milk (Skim, 2%, whole, chocolate)

## **Desserts**

Oreo shake

Brownie sundae

Ice cream and fresh fruit

## Mission Nutrition, Lesson Plan 5 (K-2nd)

# Exercise and Healthy Eating Habits

---

## Summary

1. Subject: Exercise and healthy eating habits
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To teach the students how to exercise properly, why exercise is important, and what eating habits are healthy (and unhealthy).
4. Time Allotment: 50 minutes

## Implementation

### Learning Context

- a. Most children know what exercise is and understand that it can be helpful in losing weight, but do not know most of the benefits. In addition, many children know that overeating is unhealthy but do not know how to prevent it.

### Procedure

- a. Exercise to music (10 min)
  - In the gym or outside, gather the students and explain that we will be trying out different exercises.
  - Play music from a child-friendly playlist at a volume loud enough to hear, but not too loud that the students can't pay attention.
  - Take suggestions for different exercises, deciding the amount as you go.
    - If children are stuck, try the following:
      - Jumping jacks
      - Lunges
      - Sit-ups
      - Push-ups
      - Arm circles
      - Knee-ups



- Plank
  - Run
  - Be very quick and upbeat
  - After doing 5 or 6 formal exercises, try some yoga (sun salutation, tree pose if there is enough time).
  - Stretch AFTER exercises
    - Touch toes
    - Butterfly
    - Thigh stretch (standing)
    - Arm stretches (behind head)
- b. Hummus, carrots, and pita chips (5 min)
  - Describe what hummus is (how it is made, what it tastes/feels like)
  - Ask that all students try it, but do not force them to
- c. Exercise Discussion (10 min)
  - As the students are eating, discuss exercise.
  - Ask students: “Why is exercise important?” (Write on the board.)
    1. Helps maintain strong bones
    2. Controls weight
    3. Builds muscles
    4. Improves sleep
    5. Improves mood
    6. Prevents chronic diseases
  - Ask students: “How long should you exercise every day?”
    - 60 minutes/1 hour
  - Ask students: “Why did we stretch after exercising?”
    - To prevent pulling a muscle
  - Ask students: “What kinds of sports do you play?”
  - “There are lots of other types of exercise, too.”
    - Formal exercise (like jumping jacks and sit-ups)
    - Running
    - Walking
    - Riding a bike
    - Swimming
    - Jumping rope
- d. Coloring “Healthy Eating Habits” Posters (20 minutes)
  - Hand out the posters (separate document) and explain what each one means as crayons are passed out. (Instruct them to not write their name on the poster.)
  - Ask the children to read their posters aloud, discuss why we would do these things.



- Eat slowly: “Our tummies take time to feel full. If we eat too fast, we often eat too much.”
  - Don’t eat and watch TV: “TV distracts us and if we are distracted we eat too much.”
  - Use small plates: “Using too large of plates causes us to get more food and then eat too much.”
  - Stop eating when you are full: “Eating after you feel full means you are eating too much, and that is unhealthy.”
  - Portion out your snacks: “When we take our snacks, like potato chips or popcorn, out of the bag and into a separate bowl we tend to eat less.”
  - Don’t eat because you are bored: “Eating when you are bored or sad makes you eat too much. We need to eat when we are hungry and stop when we are full.”
  - Drink lots of water: “It is important to stay hydrated throughout the day, especially if you have been running around or playing outside.”
  - Don’t skip meals: “Skipping meals, like breakfast, makes you hungrier throughout the day--distracting you and often leading to eating quick, unhealthy food.”
- Have the children color the posters appropriately
  - Later, hang the posters around the school
- e. Clean-up (3 min)
- f. Closing (2 min)
- Have the students line up according to after school plan
  - Give them the handout of the week

## Materials & Resources

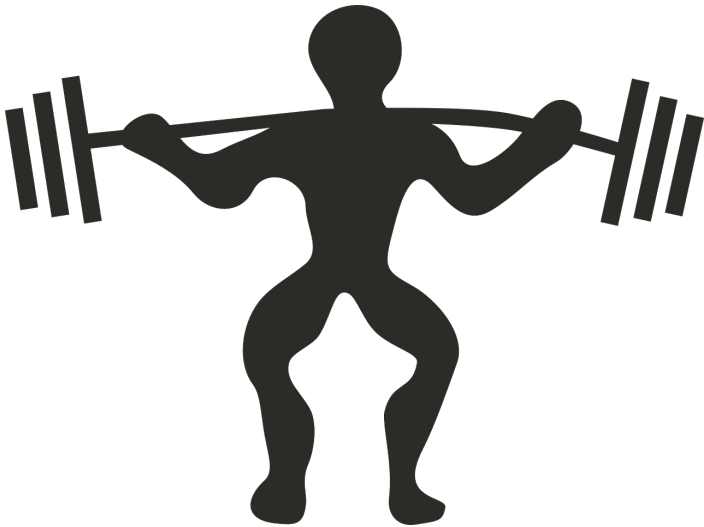
- a. Instructional Materials:
- Lesson plan
  - “Healthy Eating Habits” posters
  - Handout of the week
- b. Resources:
- Snack: hummus, carrots and/or celery, pita chips; plates and napkins
  - Crayons
  - Speaker for music



# WHAT DID WE DO IN MISSION NUTRITION THIS WEEK?

## Introducing: Exercise!

This week we learned about how to exercise properly, why exercise is important, as well as tips on healthy eating habits.



There are many fun and family-friendly ways to exercise.

- Going for a walk
- Going on a bike ride
- Swimming

Of course, there are also a lot of sports that children can enjoy which keeps them active.

- Soccer
- Baseball
- Basketball
- Football
- Volleyball

Why is exercise important?

- Helps maintain strong bones
- Controls weight
- Builds muscles
- Improves sleep
- Improves mood
- Prevents chronic diseases

In addition, children like to play active games on their own.

- Jump rope
- Tag
- Hopscotch

There are also 3 types of exercise:

1. Aerobic (cardio)
2. Flexibility building
3. Strength-training

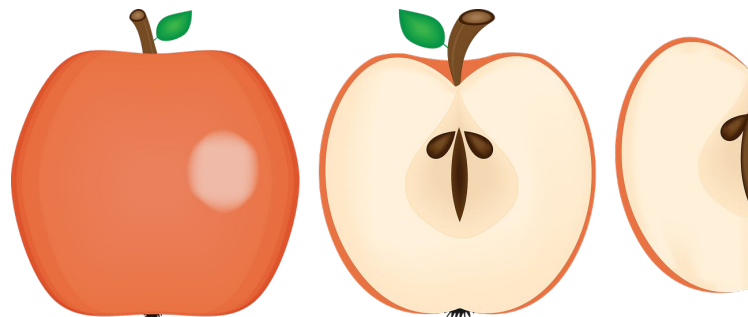
### Remember:

Children need at least 60 minutes of exercise EVERY DAY.

### Remember:

Stretch AFTER exercising. Stretching before can hurt your muscles.

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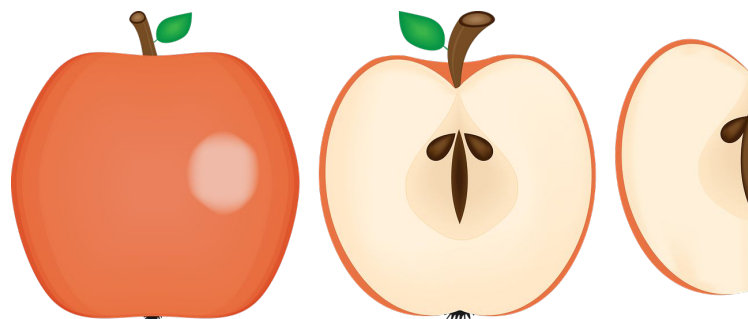
# THE DO'S AND DON'TS OF EATING HEALTHY

DO	DON'T
Eat slowly	Eat while watching TV
Use small plates	Keep eating after you are full
Portion out snacks	Eat because you are bored or sad
Stay hydrated	Skip meals

Most of these “DO’s” and “DON’Ts” come down to overeating. By using small plates, eating slowly, and being mindful of how much you are eating, you will feel and be healthier.

**Remember:**

Eating meals together and at a table builds family bonds and allows adults to model healthy eating behaviors.



# Mission Nutrition, Lesson Plan 6 (K-2nd)

## Review Day and Group Discussion

---

### Summary

1. Subject: Review game and group discussion
2. Grades: Kindergarten, 1st, and 2nd
3. Objective: To review the material from the last five weeks of club and learn what the students liked and disliked.
4. Time Allotment: 50 minutes

### Implementation

#### Procedure

- a. Oatmeal Chocolate Chip Cookies (5 minutes)
  - Hand out a certain number of cookies, prepared beforehand.
- b. Review Game (20-25 minutes)
  - Have one volunteer prompting the groups and keeping track of points and another volunteer reading the questions and answers (separate document).
  - Divide the students into 2 or more teams, each with a maximum of 5 people.
    - Ask the students to come up with team names. If they cannot decide, assign them colors.
    - Have the teams line up in separate lines.
    - Ask the first student in each line a question.
      - If they answered correctly, the student rolls a dice. The number on the dice indicates how many points the question is worth.
      - After a student answers (whether correctly or incorrectly), send them to the back of the line and move to the first student of the next team.
  - Keep track of points.
    - The team who wins gets to pick out one prize each from the prize box.
    - Thank students for not complaining if they did not get a prize

- b. Group Discussion (15-20 minutes)
  - Instruct the students to give only one answer while voting.
  - Ask the students questions from the “Week 6: Group Discussion Questions” document
    - List the possible answers (they may need to be repeated several times)
  - Have one volunteer taking notes
- e. Clean-up (3 min)
- f. Closing (2 min)
  - Have the students line up according to after school plan
  - Give them the handout of the week

## Materials & Resources

- a. Instructional Materials:
  - Lesson plan
  - “Review Game” questions
  - “Group Discussion” questions
  - Handout of the week
- b. Resources:
  - Snack:
    - <http://amyshealthybaking.com/blog/2014/11/30/the-ultimate-healthy-soft-chewy-oat-meal-raisin-cookies/>
      - Use mini chocolate chips instead of raisins
      - Use honey instead of agave
      - Half the cinnamon
  - Plates and napkins
  - Dice
  - Prizes
  - Paper and writing utensil (for taking notes during the group discussion)



Helpful info  
from the  
creator of  
Mission  
Nutrition:

# HEALTHY FEEDING PRACTICES

**vs.**

# CONTROLLING FEEDING PRACTICES

As a parent, you know that feeding children can be tricky sometimes. It is important to keep in mind your goal: raising a healthy, happy child. By using Healthy Feeding Practices versus Controlling Feeding Practices, you can ensure that your child has healthy eating habits all of their life.

## What are Healthy Feeding Practices?

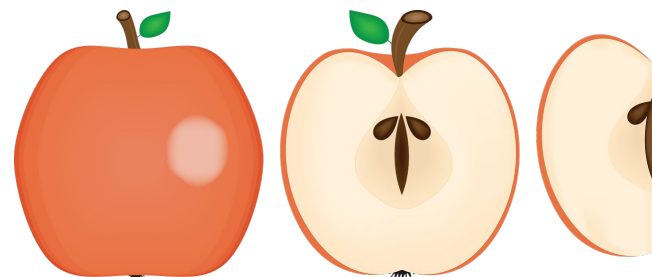
Healthy Feeding Practices are those that support healthy eating habits for young children. Some examples are:

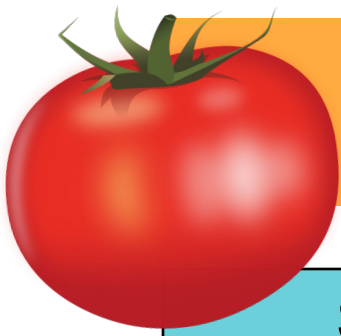
- Eating with children at a dinner table
- Keeping plenty of fruits and vegetables available to children
- Modeling healthy eating behaviors
- Letting children serve themselves and decide how much they want
- Allowing a child to decide when they are full

## What are Controlling Feeding Practices?

Controlling Feeding Practices are those that have a negative impact on a child's eating habits. Some examples are:

- Hiding food from children
- Forcing a child to "clean" his or her plate
- Not letting children eat one food until they have eaten a different food
- Making children try new foods when they don't want to
- Rewarding children with sweets





# PRACTICING HEALTHY FEEDING PRACTICES

Say THIS	Not THAT
"Are you full?"	"Are you done?"
"Does it make your tummy happy?"	"Let's see you make a happy [clean] plate."
"It is okay to not eat if you are full. But you should eat now if you are hungry."	"You did not eat anything and you will be hungry later. Eat something now."
"Start with one scoop, and if you are hungry later you can have more."	"Don't take two scoops. Take one scoop, okay?"
"Does your body have what it needs?"	"Hurry up, it's time to go. Lunchtime is over."
"If you are full, you don't need to keep eating now."	"You ate a lot. Your tummy will hurt if you eat more."
"We should eat when we are hungry and we can stop eating when our tummy is full. It is okay to stop eating if you are full, even if there is food left on your plate."	"We cannot waste food by leaving any on our plates. Let's make a happy (clean) plate"
"You can touch and smell the section of orange first to see if you might like to try it. You don't have to eat it. You can try it next time."	"Can you put a little tiny bit on your plate? Just try it, please."

Table and information adapted from McBride, B. A., & Dev, D. A. (2014). *Preventing Childhood Obesity: Strategies to Help Preschoolers Develop Healthy Eating Habits*.



## Week 6: Review Game!

- Divide the students into 2 or more teams with a maximum of five people.
- Ask the students to come up with team names. If they cannot decide, assign them colors.
- Line students up in their group. Ask the person at the front of the line a question.
- If they answer correctly, the student rolls a dice. The number on the dice indicates how many points the question is worth.
- Whether they answer correctly or not, have them go to the back of the line.
- Ask the first student in the next team a question.
- Keep track of points.
  - The group who wins gets to pick out one prize each from the prize box.
  - Thank students for not complaining if they did not get a prize

### Questions & Answers:

1. What food group is rice in?
  - a. Grains
2. Name 3 of the five food groups.
  - a. Fruit, Vegetables, Dairy, Protein, Grains
3. Give two examples of protein foods.
  - a. Chicken, beef, pork, nuts (peanuts, almonds, pecans, etc.), beans, fish, tofu, etc.
4. What food group is represented by the cup on MyPlate?
  - a. Dairy
5. Which is better for you: milk or soda?
  - a. Milk
6. Should you stretch before or after exercising?
  - a. AFTER
7. Which is better for you: 100% Orange Juice or Pink Lemonade?
  - a. 100% orange juice
8. Are grilled chicken and fruit salad green, yellow, or red light foods?
  - a. Green light foods
9. What is the minimum amount of minutes you (kids) should spend being physically active everyday?
  - a. 60 minutes
10. Which should you eat more of: grains or protein?
  - a. Grains

11. Which is better for you: cupcakes or brown rice?
  - a. Brown rice
12. What food group is popcorn in?
  - a. Grains
13. What food group are sweet potatoes in?
  - a. Vegetables
14. Which is NOT a food group: fruit, dairy, grains, or bacon?
  - a. Bacon
15. What food group is yogurt in?
  - a. Dairy
16. Which is better for you: broccoli or ice cream?
  - a. Broccoli
17. Give two examples of fruits.
  - a. Do not accept tomatoes, cucumbers, or other vegetables that are botanically fruits
18. Name one of the two food groups that beans are in.
  - a. Vegetables or protein
19. Which is better for you: salad or chips and salsa?
  - a. Salad
20. Give two examples of grains.
  - a. Rice, bread, popcorn, cereal, pasta, etc.
21. Are mozzarella sticks and french fries green, yellow, or red light foods?
  - a. Red light foods
22. Which is NOT a food group: vegetables, protein, or ice cream?
  - a. Ice cream
23. Give two examples of foods in the dairy food group.
  - a. Milk, yogurt, cheese, ice cream.
24. Which should you eat more of: fruit or vegetables?
  - a. Vegetables
25. Give an example of a red light food.
  - a. Accept examples such as cake, french fries, fried chicken, and hot dogs
26. Give an example of a green light food.
  - a. Accept examples such as salad, brown rice, apples, and milk
27. Which is better for you: carrots or brownies?
  - a. Carrots
28. What food group are almonds in?
  - a. Protein
29. Give two examples of vegetables.
  - a. Accept examples such as tomatoes, cucumbers, and peppers

## Week 6: Group Discussion Questions

Ask the students each question and give them the options for answers. Instruct the students to raise their hand for the option they select after you read the list again; ask the students to give only one answer while voting. Count how many students voted for each option and record how many students were present. Have one person taking notes. Allow 15-20 minutes. \*Omit any activities that were not included because of time restraints.

1. What was your favorite activity from the last six weeks of Mission Nutrition Club?
  - Food BINGO!
  - Relay race
  - Matching portion sizes worksheet
  - MyPlate word game
  - Five corners
  - MyPlate collage
  - Red Light, Green Light
  - Reading a book
  - Restaurant discussion
  - Exercising
  - Coloring posters
  - Review game
2. What was your least favorite activity?
  - (From above)
3. What was your favorite snack?
  - Taste test
  - Fruity Grahams
  - Fruit kebabs
  - Fruit smoothies
  - Hummus, pita chips, & carrots
  - Oatmeal cookies
4. What was your least favorite snack?
  - (From above)
5. Did you talk about what we did and learned in club with your parents? Did you share the handouts and activities with them?
6. Have you or your family changed any of your eating habits because of this club?

## Appendix C: Family Activity Night Activities

## Family Activity Night Games

At the Family Activity Night event, set up a table with several handouts and recipes for parents, activity sheets for children, unique foods to sample, and one of the following games. If there is extra room on the table, lay out the sugar baggies (from the third lesson in the third through fifth grade curriculum), labels for the bags, and the “Rethink Your Drink” sign. In addition, hang the “Mission Nutrition” sign behind the booth.

### Mystery Foods

- Cut a square hole in the top of a large, old shoebox and wrap it in generic wrapping paper.
- Fill the box with plastic/play food from all five food groups.
- At the booth, lay out five paper plates with tented food group signs above them.
- As families and children approach the booth, ask them if they would like to play a game with the five food groups. Give them the following instructions:
  - “Close your eyes and place your hand in the hole on top of this mystery box. Inside the box there are little plastic foods. Keeping your hand in the box and your eyes closed, choose a food and feel its shape and texture. Now, before you pull it out, guess what the food is!”
- Once the child guesses, have them pull the plastic food out of the box. They may or may not have guessed correctly. Give them the following instructions:
  - “Oh, look, it’s [food name]! Do you know what food group it belongs in? If you do, you can put it down on the plate in front of the right sign. The options are Fruits, Vegetables, Dairy, Grains, and Protein (*say this while pointing to the corresponding signs*).”
- If they are struggling to choose a food group, give them the option between two (one correct and one incorrect).
- If a child chooses a group that is incorrect, say “Almost! [Food name] is actually in the [food group] group, just like [examples of similar foods].”
- If there is only one child at the booth, allow them to continue to pick out the other foods and sort them. If there are several children, have them take turns.
- Once all of the plastic foods have been removed from the box and sorted correctly, simply put the plastic foods back in the box and welcome other children to play.

### Food Dice

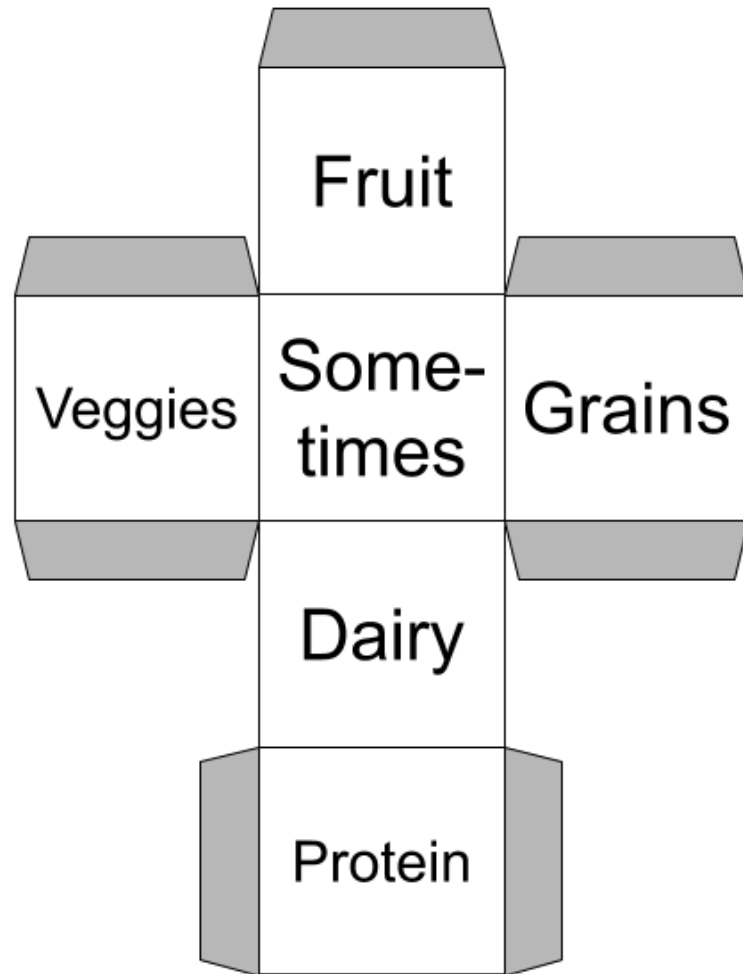
- Print the food group dice, fold it along the black lines, and tape or glue it together using the grey tabs.

## Mission Nutrition

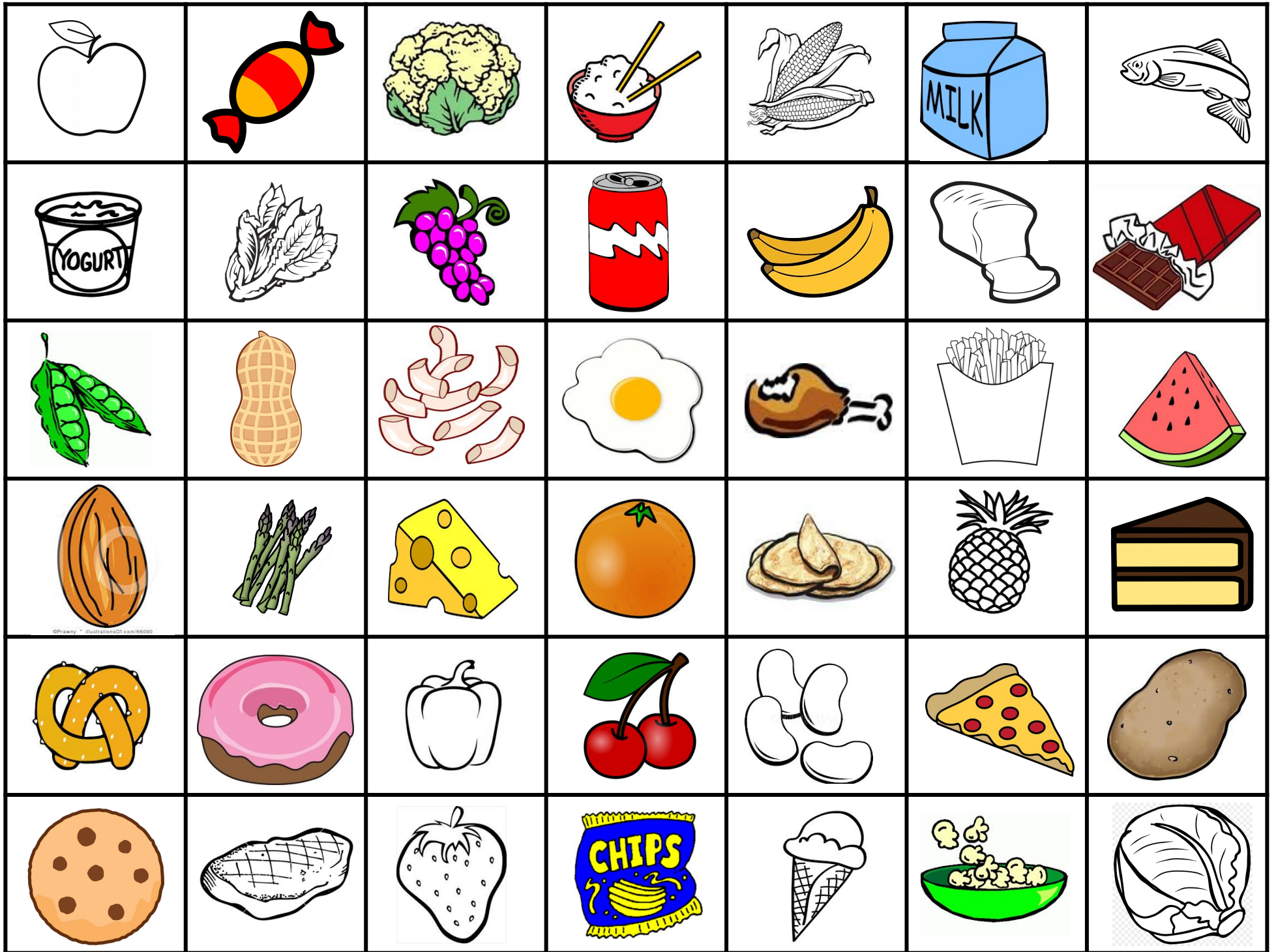
- At the booth, lay out the table of 42 foods and the food group dice.
- As families and children approach the booth, ask them if they would like to play a game with the five food groups. Give them the following instructions:
  - “First, can you read the words on this dice for me? It says, ‘Fruits, Vegetables, Dairy, Grains, Protein, and Sometimes.’ These are the five food groups plus ‘Sometimes Foods.’ Do you know what sometimes foods are?”
    - If they do not know the answer, tell them, “Sometimes foods are those that we should only eat sometimes, or in moderation. For example, cake, french fries, candy, and soda are foods that are fine if we eat them every once in a while (like having one soda a week), but there are healthier options that we should eat more of. Does that make sense?”
  - “To play this game, you will gently roll the dice and read whatever word it lands on. Then, you will point to a picture of a food from this table that goes in the group on the dice. For example, if the dice lands with the word ‘Fruit’ on top, then I can look at the table and point to the apple (because that is a fruit). Do you want to try now?”
- Keep in mind that some foods on the table may belong in two groups (e.g., the cake is a sometimes food and a grain product, the french fries are a sometimes food and a vegetable, and the beans are both a vegetable and a protein food).
- If there is one child at the booth, allow them to play as long as they want. If there are other children waiting to play, either allow them all to take turns or tell the first child that it is time to let his/her friend try now (depending on how long the first child has been playing).

**MISSION**

**NUTRITION**







# RETHINK YOUR DRINK!

Below lies the amount of added sugar and calories in 1 cup (8 ounces) of each drink.



Which drinks are the healthy choices?

Which are the unhealthy?

1. Water

3. 100%  
Orange Juice

2. Fat-free Plain  
Milk

4. Sports Drink  
(Gatorade)

5. Fat-free  
Chocolate Milk

7. Fruit-flavored  
Powder Mix  
(Kool Aid)

6. Soft Drink  
(Coca Cola)

8. Lemonade

9. Root Beer

10. Fruit Drink  
(Sunny D)

~~Dear Mission Nutrition~~

Dear Mission Nutrition  
Your guys's Club is so  
fun and I have come  
to this Club like 4 or 5  
times. I love you guys.  
Keep on being healthy