Nutrition Focused Lesson Plans Created for Implementation in the Georgia High School Health Classroom

NUTRITION-FOCUSED LESSON PLANS CREATED FOR IMPLEMENTATION IN THE GEORGIA HIGH SCHOOL HEALTH CLASSROOM

By

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In the 2018 position paper on *Comprehensive Nutrition Programs and Services in Schools*, the Academy of Nutrition and Dietetics stated that "comprehensive, integrated nutrition programs in preschool through high school are essential to improve the health, nutritional status, and academic performance of [children in the United States]"[1]. In the paper, nutrition education is cited as a fundamental feature of nutrition programming in schools[1]. Nutrition education has been shown to increase healthful food choices and decrease the risk of childhood obesity[1]. This literature review aims to outline the importance of school-based nutrition education in combatting the childhood obesity epidemic and affecting positive adolescent health outcomes. It will do so by reviewing the efficacy and outcomes of school-based nutrition education interventions and the components required for successful implementation.

According to the 2020-2025 Dietary Guidelines for Americans, today's adolescents are falling short of the Dietary Reference Intakes (DRIs) for vegetables, fruits, dairy, and whole grains, and exceeding the DRIs for added sugars, saturated fat, and sodium[2]. Thus, the eating pattern of the average American adolescent is not adequately supporting growth and development during these crucial years. The combination of a decreased physical activity and poor dietary intake put adolescents at a higher risk for overweight and obesity[2,3]. The prevalence of childhood obesity has reached epidemic levels in the United States[3]. According to the Centers for Disease Control (CDC), between 2017 and 2020, 19.7%, or 14.7 million children and adolescents are classified as having obesity[3]. Furthermore, between 2017-2020, in adolescents aged 12-19 years old, obesity rates reached 22.2%[3]. Startlingly, over the past three decades, the rates of adolescent obesity have tripled[4]. Obesity is categorized as a body mass index (BMI) equal to or greater than the 95th percentile when measured against the sex-specific CDC BMI-for-age growth charts[3]. Obesity in adolescents is associated with an increased risk of cardiometabolic factors such as high blood pressure, elevated blood lipids, type-2 diabetes, sleep apnea, some forms of cancer, as well as psychological effects including low self-esteem, and depression[4,5]. Obesity is a complicated disease and can occur due to a combination of several factors, including genetic, socioeconomic, environmental, health, and behavioral factors[5]. Several of these are not controllable, but behavioral factors inclusive of diet and physical activity level are. Nutrition education has been proposed and utilized

as a preventative measure to equip children and adolescents with the tools and knowledge to combat the obesity epidemic[1,4,6-8].

Several studies have examined the effects of school-based nutrition programs on adolescent's food choices and health outcomes[6,7,10,11]. A 2022 systematic review and meta-analysis studied the relationship between school-based food and nutrition education interventions on the food consumption of adolescents ages 10-19[6]. The meta-analysis, consisting of 11 randomized controlled trials, found a significant increase in the number of times vegetables were consumed per week post school-based nutrition education interventions[6]. Moreover, in a 2013 meta-analysis, the effect of school-based nutrition education on participants' BMI was analyzed[7]. This meta-analysis compiled data from eight randomized controlled trials conducted in seven countries across the globe, resulting in sample size of 8,451 participants, ages 5-18[7]. The school-based nutrition education interventions from studies included in the meta-analysis ranged in length from four months to three years[7]. Researchers found that the school-based nutrition education intervention resulted in a significant decrease of .33 kg/m^2 (95% CI: -0.11 to -0.55, p=0.003) in the BMI of participants[7]. This meta-analysis also revealed that in studies lasting longer than a year, BMI was reduced by an average of 0.48 kg/m^2 (95% CI: -.76 to -.19; $p< 0.001$). Both meta-analyses support the claim that school-based nutrition interventions can lead to positive health outcomes for adolescents.

The school environment provides an ideal setting for the transmission of nutrition education, as adolescents spend a large portion of their day engaged in school-based activities[6-9]. Furthermore, the organizational structure and resources available in schools allow for the possibility of providing nutrition education using a multicomponent or multi-strategy approach involving a secondary active component in addition to simply providing traditional classroom instruction alone[6,10]. Elements of a multicomponent approach could include parental involvement[6,10], providing teachers with training and resources[9,12], altering the school food environment[10], and implementing behavior change strategies to target specific modifiable behaviors[11]. Additionally, the Academy of Nutrition and Dietetics asserts that effective school-based nutrition education aligns with the interests and motivations of students, utilizes behavior change strategies to target identified behaviors, provides opportunities for students to participate in growing and

preparing food, is based on a curriculum that is aligned with state and national standards, employs active learning methods and leverages technology, is implemented for a sufficient amount of time to effect change, and provides teachers with adequate training and support for quality instruction[1].

One of the components listed across several studies as imperative for effective nutrition education is teacher support and training[1,6,9,12]. A 2015 study conducted on 102 pre-kindergarten through twelfth grade public school teachers in California highlights teachers' need for support[12]. The study used an online survey to better understand the educators' perceived barriers to educating students about nutrition, identify what resources teachers currently use for nutrition education, and determine the association between teacher's knowledge and nutrition-based instruction[12]. From those surveyed, only 37% of respondents reported teaching nutrition in their classrooms[12]. Regarding the teachers who did not report teaching nutrition in their classrooms, researchers found that common major barriers included a lack of instructional time for nutrition education (54%), the belief that nutrition was unrelated to the subject that they taught in their classroom (32%), and a lack of available nutrition education resources (32%)[12.] A component of the online survey used a validated questionnaire to test educators' nutrition knowledge and researchers used an ordinary least squares regression analysis to analyze the results[12]. The mean score on the questionnaire was 35.8 out of a total score of 58 (SD 10.3)[12]. Interestingly, nutrition knowledge was not significantly associated with the actual implementation of nutrition-based instruction in a teacher's classroom. However, nutrition knowledge scores were significantly and positively associated with the variables of high school teachers ($\beta = 5.13$; $p < .05$) and educators who identified as female ($\beta = 6.78$; $p < .05$). Nutrition knowledge scores were significantly and negatively associated with those who identified as Hispanic or Latino ($\beta = –15.50$; $p < .001$)[12].

The positive effect of teacher support and training was demonstrated by a 2011 study conducted on 59 health educators in Michigan who taught 6-12th graders[9]. The study used a validated survey tool pre and post intervention to measure teacher self-efficacy regarding teaching nutrition curriculum, the perceived nutrition outcomes teachers had for their students, and the educators' intention to teach nutrition content in their classroom[9]. For the intervention, teachers were divided into two groups[9]. The

intervention group received eight hours of professional development focused on equipping teachers with the content knowledge, instructional techniques, and resources needed to implement nutrition education based on active learning methods in their classroom[9]. Nutrition curriculum was based on the Michigan Model Book "What's Food Got to Do with It?" curriculum and consisted of eight lessons focused on topics including the food pyramid and food groups, serving sizes, food labels, evaluating nutrition information, healthy weight and body image, nutrient density of foods, school nutrition, and navigating healthy eating at fast food restaurants[9]. The control group did not receive any training[9]. Responses from the questionnaire were analyzed using a 2 group by 2 times ANOVA[9]. After the professional development intervention, researchers found that the teachers in the intervention group had a significant increase in their post intervention self-efficacy and perceived nutrition outcome scores when compared to their pre-intervention values and when compared to the post intervention scores of the control group[9]. Regarding intention to teach nutrition content, there was a significant increase in this value for the intervention teachers when comparing data from their pre and post intervention scores[9]. Although this study consisted of a small sample size, it underscores the importance of teacher support and training for effective nutrition education.

The studies reviewed in this paper highlight the need for school-based nutrition education combat the current public health crisis of childhood obesity and improve overall student health outcomes[1-12]. For these interventions to be effective and affect change, research suggests employing a multicomponent, active learning approach that is specifically tailored to the behaviors, interests, and motivations of students and equips teachers with the tools and knowledge to teach nutrition principles and skills confidently and effectively[1,6,7,9-12].

OUTCOME DOCUMENT:

Table Of Contents:

A special thank you to my professors at Georgia State University, my Coordinated Program preceptors, my students, my Capstone committee, and most especially, my family. You've taught me so much in these past two years, and I've tried to include as much as possible in the pages that follow.

This is dedicated to the teachers everywhere. You are some of the most hardworking people on the planet. Thank you!

Lesson 1: Dietary Guidelines for Americans and Fast Food

Note: The introductory information below is a brief overview of the four key guidelines from the 2020-2025 Dietary Guidelines for Americans. The full document can be found here: https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf
(Full citation in the sources section below).

Introduction:

The Dietary Guidelines for Americans is a document published every 5 years by the US Department of Agriculture (USDA) and Department of Health and Human Services (DHHS) to provide science-based advice for Americans at every life stage to meet nutrient needs, maintain good health, and prevent chronic disease.

The DGAs provides guidelines for Americans organized by specific life stage, but there are four key guidelines that apply to every life stage:

1. **Follow a healthy dietary pattern at every life stage.**
    - A dietary pattern is the total picture of all the foods and beverages an individual consumes over time.
2. **Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.**
3. **Focus on meeting food group needs with nutrient-dense foods and beverages and stay within calorie limits.**
4. **Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages.**
    - Added sugar:
        - < 2 years old: Do not consume foods and beverages with added sugar.
        - > 2 years old: Less than 10% of total calories should come from added sugar.
        - If you are eating a 1700 calorie diet, this means that no more than 170 calories should come from added sugars. This is equivalent to 42.5 grams of added sugar.
            - *Note: The American Academy of Pediatrics has stricter guidelines and suggests no more than 25g of added sugar daily.*
    - Saturated Fat:
        - >2 years old: Less than 10% of total calories should come from saturated fats.
        - If you are eating a 1700 calorie diet, this means that no more than 170 calories should come from saturated fat. This is equivalent to about 18 grams of saturated fat.
    - Sodium:
        - >14 years old: Less than 2,300 mg per day.

Many people rely on fast-food restaurants to provide quick and inexpensive meals throughout the week. However, many options at fast food restaurants are high in sodium, saturated fats, and added sugars – the very nutrients we are encouraged to limit. Today, we'll analyze the menus of popular fast-food restaurants and identify items that can help us stay under the limits listed in the DGAs.

Task:
You will be eating one meal at a fast-food restaurant of your choice. Navigate to the restaurant's nutrition information section on their website.

1. First, identify a combination of entrée + at least one side + beverage that you would typically order. Record the sodium, saturated fat, and added sugar of this meal.
2. Next, using the nutrition information, create a meal that adheres to the following guidelines:
   - Sodium: Less than 800 mg
   - Saturated Fat: Less than 10 g
   - Added Sugar: Less than 15 g

Note: You might need to adjust the size or opt for the kid's version of certain items to fit within the guidelines. Also, don't forget to include sauces if you use them!

Example:

Fast Food Restaurant: Taco Bell
Note: Values recorded in table are reflective of menu information available in July 2024.

Typical Meal

	Menu Item	*Saturated Fat (g)*	*Sodium (mg)*	*Added Sugar (g)*
Entree	*Cheesy Gordita Crunch*	*11*	*840*	*1*
Side	*Loaded Beef Nachos*	*5*	*930*	*0*
Drink	*Limonada Freeze*	*0*	*120*	*50*
	Total:	*16*	*1890*	*51*

	Menu Item	*Saturated Fat (g)*	*Sodium (mg)*	*Added Sugar (g)*
Entree	*Black Bean Chalupa Supreme*	*4*	*460*	*0*
Side	*Chips and Nacho Cheese Sauce*	*1.5*	*280*	*0*
Drink	*Ice Water*	*0*	*0*	*0*
	Total:	*5.5*	*740*	*0*

Fast Food Restaurant: _____

Typical Meal

	Menu Item	Saturated Fat (g)	Sodium (mg)	Added Sugar (g)
Entree				
Side				
Drink				
	Total:			

	Menu Item	Saturated Fat (g)	Sodium (mg)	Added Sugar (g)
Entree				
Side				
Drink				
	Total:			

Reflect:
1. How easy or difficult was it to stick within the limits provided? Why?
2. What do you think will be barriers to choosing foods lower in saturated fat, sodium, and added sugars?

Sources:

1. Home: Dietary guidelines for Americans. Home | Dietary Guidelines for Americans. Accessed July 15, 2024. https://www.dietaryguidelines.gov/.

2. Korioth T. Added sugar in kids' diets: How much is too much? Publications.aap.org. March 25, 2019. Accessed July 15, 2024. https://publications.aap.org/aapnews/news/7331/Added-sugar-in-kids-diets-How-much-is-too-much.

Lesson 2: Comparing Intake to Dietary Reference Intakes

Introduction:
The Dietary Reference Intakes provide information on the optimal amount of a particular nutrient (carbohydrates, fats, protein, vitamins, minerals, water) that a person should consume daily based on their age and sex. They are determined based on extensive research. These should serve as targets for people when they are planning their eating patterns. The best way to meet your DRI targets is to eat a wide variety of foods such as fruits, vegetables, whole grains, lean protein, and low-fat dairy. You can find an extensive list of the DRIs here:
https://ods.od.nih.gov/HealthInformation/nutrientrecommendations.aspx#dri
(Full Citation in sources section below)

Task:

Part I:
1) In the table below, record everything you ate and drank for the past 24 hours. Be sure to be as specific as possible – include type (ex: instead of milk, specify nonfat, whole, or 2%) and include portion sizes (ex: 8 oz, 2 cups, 1 TBSP)

Approximate Time	Food and Amount
Example: 7AM	*1 slice Pepperidge Farm Raisin Cinnamon Swirl Bread* *5.3 oz Black Cherry Chobani Greek Nonfat Yogurt* *6 oz Kroger Pulp Free 100% Orange Juice*

Part II:
1) Navigate to https://cronometer.com/ or https://www.myfitnesspal.com/ and create a free account.
(Note: if students do not feel comfortable inputting their recall data, please provide an alternative scenario for them)
2) Input the foods from the table above into your nutrient analysis database of choice. When inputting your food items, be sure to record the correct amount. If you are unable to find a specific brand or item, do your best to find a close substitute.
4) Once you have finished inputting your recall data, it's time to analyze your report.
5) Identify three nutrients in your report for which you did not meet the daily recommended intake. Fill out the following table.

Nutrient	Amount	Recommended Intake	Food Sources of Listed Nutrient
Example: Iron	*8 mg*	*15 mg*	*Turkey, chicken, tofu, beans, spinach, kale*

Reflection:

1. What can you identify as barriers to meeting the recommended intake for all nutrients?
2. What steps can you take to incorporate more of the nutrients you are missing into your eating pattern?

Sources:

1. Blake JS. *Nutrition and You*. 6th ed. Pearson Education; 2022.

2. Office of dietary supplements - nutrient recommendations and databases. NIH Office of Dietary Supplements. Accessed July 15, 2024. https://ods.od.nih.gov/HealthInformation/nutrientrecommendations.aspx#dri

Lesson 3: Reading and Utilizing Food Labels

Introduction:
If you've taken a walk around the grocery store lately, you'll see all kinds of packaging. Food Labels are visual tools that we can use as consumers to better understand the amount of nutrients of the food we eat. They also allow us to compare similar foods and make more informed choices based on our individualized nutrient needs and budgets. Food Labels are required by law to be on all packaged foods in the United States.

Note: The following is a summary of the FDA article "How to Understand and Use the Nutrition Facts Label". You can access the full article here: https://www.fda.gov/food/nutrition-facts-label/how-understand-and-use-nutrition-facts-label (Full Citation in sources section below)

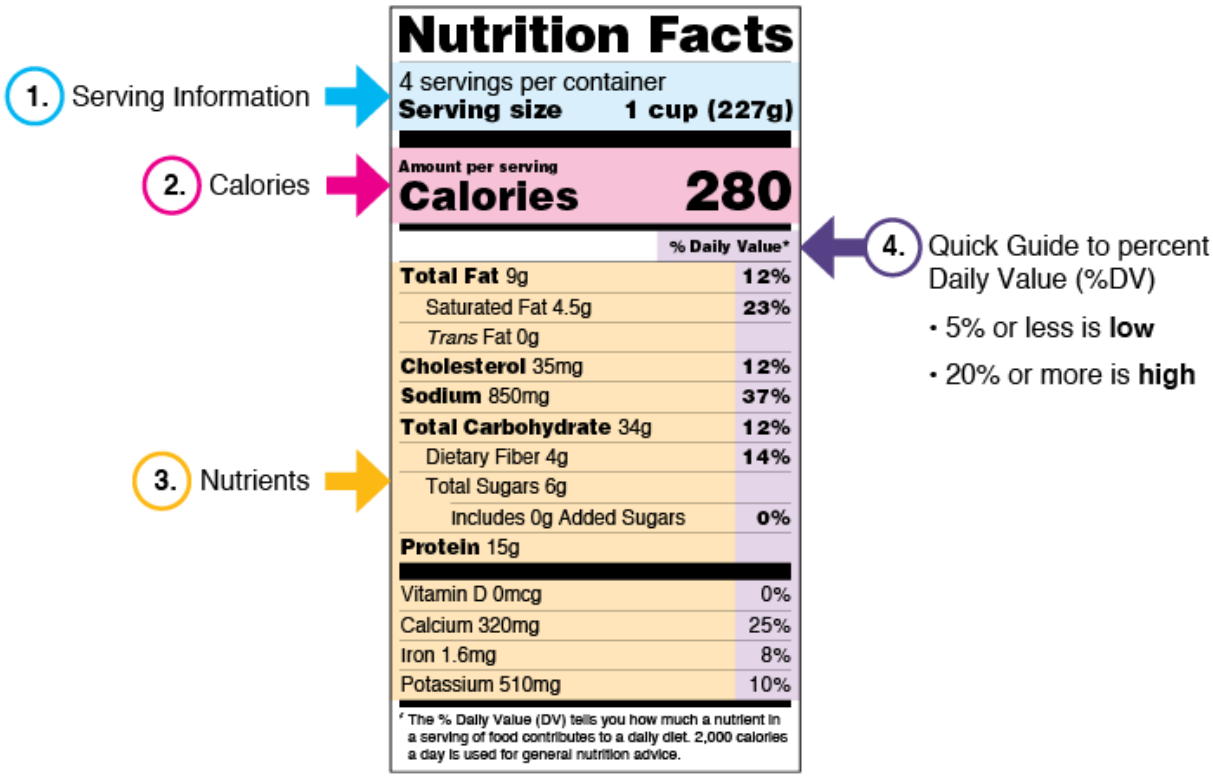

Image Source: https://www.fda.gov/food/nutrition-facts-label/how-understand-and-use-nutrition-facts-label

Food Labels can be divided in four main sections: **Serving Information, Calories, Nutrients, and % Daily Value**. Each of these sections help you as the consumer make an informed decision about the food you purchase and ultimately eat.

- Serving Information: The serving size is always listed at the top of the food label. Pay close attention to this number. If you eat multiple servings of the food item, you will need to multiply your nutrient values by how many servings you consume.
- Calories: This number tells you how many calories are in one serving. This number will help you ensure that you stay within your daily calorie goals.
- Nutrients: Let's look at the three nutrients we want to limit: **saturated fat, added sugar, and sodium**. Regular overconsumption of these nutrients has been associated with an increased risk of chronic diseases like high blood pressure, heart disease, and diabetes.
  Nutrients we want to emphasize include **Dietary Fiber, Vitamin D, Calcium, Iron, and Potassium**. The typical American does not consume enough of these nutrients.

- Daily Value: We can use the %DV portion to make decisions about the nutrient profile of foods and make comparisons between several choices.

    - If the DV% is 20% or more, the food is considered to be high in that nutrient.
    - If the DV% is 5% or less, the food is considered to be low in that nutrient.

Task:
1. Navigate to the grocery store website of your choice. (Kroger, Walmart, Publix, etc. The website must display nutrition and pricing information.)
2. Choose three packaged foods that are similar. (Example – three different types or brands of cereal, crackers, or yogurt) Analyze their food labels and prices. Based on the information provided, decide which option is the best for your eating pattern and your budget. Provide justification!

Example:

	Option 1 *Chobani Plain Nonfat Greek Yogurt*	*Option 2* *Simple Truth Organic Plain Nonfat Greek Yogurt*	*Option 3* *Simple Truth Organic Greek Nonfat Vanilla Bean Yogurt*
Container Size	*32 oz*	*32 oz*	*32 oz*
Servings/Container	*5*	*5*	*5*
Serving Size	*¾ cup*	*2/3 cup*	*2/3 cup*
Calories	*90*	*110*	*140*
Saturated Fat (g)	*0*	*0*	*0*
Sodium (mg)	*65*	*85*	*75*
Added Sugar (g)	*0*	*0*	*12*
Protein (g)	*16*	*18*	*16*
Fiber (g)	*0*	*0*	*0*
Vitamin D (mcg)	*0*	*0*	*0*
Calcium (mg)	*150*	*150*	*150*
Iron (mg)	*0*	*0*	*0*
Potassium (mg)	*190*	*170*	*170*
Price ($)	*$6.49*	*$4.49*	*$4.49*
Price/Serving ($)	*$1.30*	*$0.90*	*$0.90*

Pricing and Product Information obtained from Kroger.com, July 15, 2024

	Option 1	Option 2	Option 3
Container Size			
Servings/Container			
Serving Size			
Calories			
Saturated Fat (g)			
Sodium (mg)			
Added Sugar (g)			
Protein (g)			
Fiber (g)			
Vitamin D (mcg)			
Calcium (mg)			
Iron (mg)			
Potassium (mg)			
Price ($)			
Price/Serving ($)			

Reflection:

1. What factors went into your decision for choosing the best option?
2. How/why would the best option differ from one person to another?

Sources:

1. Center for Food Safety and Applied Nutrition. How to understand and use the nutrition facts label. U.S. Food and Drug Administration. March 5, 2024. Accessed July 15, 2024. https://www.fda.gov/food/nutrition-facts-label/how-understand-and-use-nutrition-facts-label.

2. Home: Dietary guidelines for Americans. Home | Dietary Guidelines for Americans. Accessed July 15, 2024. https://www.dietaryguidelines.gov/.

3. Blake JS. *Nutrition and You*. 6th ed. Pearson Education; 2022.

Lesson 4: MyPlate and Portion Sizing

Introduction:
MyPlate is a visual food guidance system that was developed to help Americans identify well balanced, nutrient dense eating patterns. It divides food into five main food groups (protein, grains, vegetables, fruit, and dairy) and displays them proportionally on a plate. It was created based on the current Dietary Guidelines for Americans. You can access the MyPlate website here: https://www.myplate.gov/

Every individual is unique, and their nutrient needs will be too. Myplate.gov offers several tools for individuals to better understand their specific nutrient requirements based on their age, sex, activity level, as well as other factors.

Cons of MyPlate:

- Cultural foods can be hard to visualize.
- Does not take water into account.
- Not all dietary patterns regularly include dairy.
- Difficult to apply to mixed meals like smoothies, salads, and bowls.

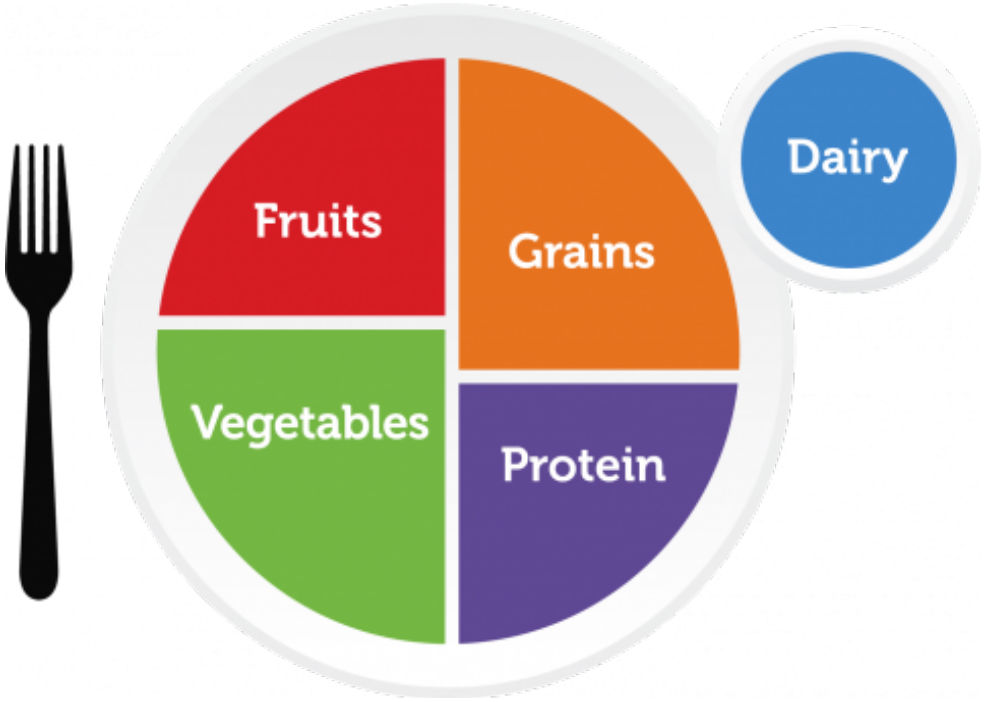

Image Source: myplate.gov

The basic concepts of MyPlate include:
1. Make half your plate fruits and vegetables. Vary your fruits and veggies and eat the rainbow!
2. Focus on whole grains. Aim to make half of the grains you eat whole grains.
3. Choose lean proteins like poultry, legumes, nuts, fish, and tofu.
4. Choose low-fat or fat free dairy.

You can dive into these concepts in more detail on myplate.gov.

As you explore MyPlate, you'll notice that recommendations are provided with portion sizes. You can use measuring cups and spoons to get exact measurements, however, when you're on the go, it is not always

realistic that you'll have these tools with you. To estimate portion sizes, use these tips and tricks listed below!

Measurement	**Estimating with your Hand**	**Estimating with Household objects**	**What to measure**
1 teaspoon (TSP)	Tip of your index finger	Postage stamp	Oils or fats
1 tablespoon (TBSP)	Thumb	Domino	Nut butter
3 ounces	Flat palm (average sized)	Deck of cards	Proteins like fish, poultry, and meats
½ cup	Scooped handful	Tennis ball	Grains
1 cup	Average sized fist	Baseball	Vegetables and fruits

Task:

Part I:
1. Navigate to https://www.myplate.gov/myplate-plan .
2. Enter your information to personalize your MyPlate plan. (If a student does not feel comfortable entering their information, please provide a scenario for them)
Tip: When you fill in all your information and press submit, click on the suggested number of calories displayed on the screen. Scroll down to view your personal recommendations. For more information on each food group, you can click the "Read More" link.
3. Using the information provided from your MyPlate plan, record your specific recommendations in the table below:

	Recommendation from MyPlate Plan	Examples of Foods in this category
Fruits		
Vegetables		
Protein		
Dairy		
Grains		

Part II:
1. Create three meals (Breakfast, Lunch, and Dinner) using the MyPlate format to satisfy your daily MyPlate recommendations. Note: Be sure that each of your meals has a minimum of three food groups represented.

- Be sure to include portion sizes!
- Feel free to include mixed foods and any cultural foods you might regularly consume.
- Utilize the MyPlate website for meal and snack ideas.
- You can add snacks. Snacks do not have to include a minimum of three food group components.

Example:
Meal: Breakfast
Description: Peanut Butter Oatmeal with Blueberries + 8 oz Glass of Nonfat Milk

	Included?	*Food Item*	*Amount*
Fruits	*Yes*	*Blueberries*	*1 cup*
Vegetables	*X*	*X*	*X*
Protein	*Yes*	*Peanut Butter*	*1 TBSP*
Dairy	*Yes*	*Nonfat Milk*	*8 oz*
Grains	*Yes*	*Old Fashioned Oats*	*1 cup cooked*

Meal:
Description:

	Included?	Food Item	Amount
Fruits			
Vegetables			
Protein			
Dairy			
Grains			

Meal:
Description:

	Included?	Food Item	Amount
Fruits			
Vegetables			
Protein			
Dairy			
Grains			

Meal:
Description:

	Included?	Food Item	Amount
Fruits			
Vegetables			
Protein			
Dairy			
Grains			

Optional Snack:
Description:

	Included?	Food Item	Amount
Fruits			
Vegetables			
Protein			
Dairy			
Grains			

Optional Snack:
Description:

	Included?	Food Item	Amount
Fruits			
Vegetables			
Protein			
Dairy			
Grains			

Reflection:

Identify two short term goals that can help you better align with your MyPlate recommendations.

1.
2.

Differentiation Tip: Give students the option to draw out their meals using the MyPlate format instead of filling out the tables. Additionally, you can opt to have students work in groups to plan the meals or have each student choose one meal to complete.

Sources:

1. MyPlate | U.S. Department of Agriculture. Accessed July 16, 2024. http://MyPlate.gov.
2. Blake JS. *Nutrition and You*. 6th ed. Pearson Education; 2022.
3. Ellis E. Serving size vs portion size: Is there a difference? Academy of Nutrition and Dietetics: eatright.org. December 18, 2018. Accessed July 16, 2024. https://www.eatright.org/health/wellness/nutrition-panels-and-food-labels/serving-size-vs-portion-size-is-there-a-difference.

Lesson 5: The Effect of Food Media on Eating Habits and Nutrition:

Information:
Energy dense foods provide more calories compared to the volume of the food. An example of an energy dense food is a chocolate donut. Conversely, nutrient dense foods provide more nutrients compared to the volume of the food. An example of a nutrient dense food is an apple. In the media, you often see energy dense foods marketed and many of those ads are targeted towards children. A 2017 study in New Zealand found that children were exposed to the marketing of energy dense foods twice as much as nutrient dense foods (Signal et al 2017). The top food items marketed included soda, fast food, sweets, and snacks (Signal et al 2017).

Show a commercial that markets an energy dense food to kids and adolescents. Look up the food label for that food and analyze the nutrient content of the food item.

Task:

Part I:
Working in groups, find 3 commercials or ads marketing food to children and/or adolescents. Put the links below:

1)
2)
3)

Answer the following questions for each commercial:
1) What product is being marketed?
2) Who is the intended audience for this commercial? Be specific about age and gender.
3) Look up the nutrition label for this product and record the following key nutrient values. Decide: Is this food energy dense or nutrient dense?

Nutrient	Nutrient Amounts Commercial 1	Nutrient Amounts Commercial 2	Nutrient Amounts Commercial 3
Saturated Fat			
Sodium			
Added Sugar			
Vitamin D			
Calcium			
Iron			
Potassium			

Part II:
Working in your groups, create a 1-2 minute commercial marketing a nutrient dense food that is served on your school's menu. This commercial should be designed to get students at your school excited about incorporating this into their eating pattern. Examples of foods include: nut butter, broccoli, sweet potatoes, grapes, etc. Get creative!

Reflection:
What do you think the impact on children's food choices would be of seeing nutrient dense foods marketed in the media?

Sources:

1. Signal, L.N., Stanley, J., Smith, M. et al. Children's everyday exposure to food marketing: an objective analysis using wearable cameras. Int J Behav Nutr Phys Act 14, 137 (2017). https://doi.org/10.1186/s12966-017-0570-3

2. Blake JS. *Nutrition and You*. 6th ed. Pearson Education; 2022.

Lesson 6: Digging Into School Lunch

Information:
The National School Lunch Program was created in the 1940's, and today, it provides meals to over 30 million students on a daily basis. School menus are created according to the Dietary Guidelines for Americans and reflect the DRIs for each age group. (See Table 1)

Table 1:

Lunch Meal Pattern	Preschool	Grades K-5	Grades 6-8	Grades 9-12
	Amount of Food Per Week (minimum per day)			
Fruit (cups)	1¼ (¼)	2 ½ (½)	2½ (½)	5 (1)
Vegetable (cups)	1¼ (¼)	3¾ (¾)	3¾ (¾)	5 (1)
Dark green	N/A	½	½	½
Red/Orange		¾	¾	1¼
Beans, peas, & lentils		½	½	½
Starchy		½	½	½
Other		½	½	¾
Additional Vegetable to Reach Total		1	1	1½
Grain (oz. eq.)*	2 ½ (½)	8 (1)	8 (1)	10 (2)
Meat/Meat Alternate (oz. eq.)	7 ½ (1½)	8 (1)	9 (1)	10 (2)
Fluid Milk (cups)	3¾ (¾)	5 (1)	5 (1)	5 (1)
Other Specifications: Daily Amount Based on the Average for a 5-Day Week				
Minimum-maximum calories (kcal)	N/A	550 - 650	600 - 700	750 - 850
Saturated fat (% of total calories)	N/A	< 10	< 10	< 10
Sodium Target 1a (mg)	N/A	≤ 1110	≤ 1225	≤ 1280

Image Source: https://snp.gadoe.org/Programs/Pages/Lunch.aspx

School lunches are provided in an offer vs serve manner. What this means is that at every lunch service, all five food groups must be **offered**. This allows students to choose which food items end up on their tray. For a meal to be complete and reimbursable, students must select three of the five food groups offered AND one of those choices must be a fruit or a vegetable.

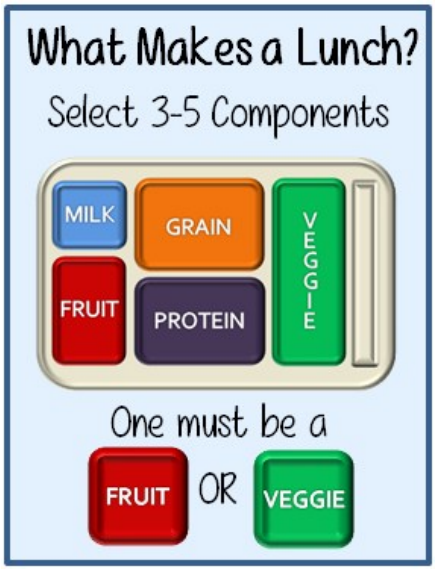

Image Source: https://www.pisd.us/page/reimbursable-meal

Task:

Part I:
Investigate and identify what the least selected food group is during a lunch period. This can be done by observation, by conducting a survey, interviewing the lunch staff, etc.

Food Groups:
- Fruits
- Vegetables
- Grains
- Protein
- Dairy

Part II:
Work in groups of 2-4 to create a new school menu item highlighting a food from the least selected food group. This menu item should be designed to appeal to students and make them more likely to select the food. Note: it would be advised to meet with your School Nutrition manager to understand cost parameters and food availability!

Part III:
Present your menu item proposals to the nutrition staff at their school. Ideally, one of the menu items can be featured on an upcoming menu!

Reflection:
1. What do you see as benefits of the offer vs serve system? What do you see as disadvantages?
2. Through this process, what did you learn about school nutrition?

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Special Thanks for Marietta City Schools!

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