Dietary Guidelines and Healthy Alternatives

Unit: Culinary Science

Problem Area: Dietary Plans

Lesson: Dietary Guidelines and Healthy Alternatives

Student Learning Objectives.

Instruction in this lesson should result in students achieving the following objectives:

1. **Analyze the Dietary Guidelines for Americans (DGAs).**
2. **Explain the DGAs healthy eating pattern recommendations.**
3. **Summarize dietary shifts to nutrient-dense foods and healthy alternatives.**

Resources.

The following resources may be useful in teaching this lesson:

E-unit(s) corresponding to this lesson plan. CAERT, Inc. http://www.mycaert.com.

"Description of the DASH Eating Plan," *NHI: National Heart, Lung, and Blood Institute.* Accessed Oct. 17, 2016. http://www.nhlbi.nih.gov/health/health-topics/topics/dash.

"Dietary Guidelines: Executive Summary," *U.S. Department of Health and Human Services.* Accessed Oct. 17, 2016. http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/#figure-es-1-2015-2020-dietary-guidelines-for-americans-at-a-glan.

"Dietary Guidelines for Americans: Dietary Guidelines and MyPlate," *USDA: Choosemyplate.gov.* Accessed Oct. 17, 2016. http://www.choosemyplate.gov/dietary-guidelines.

"What's Cooking," *USDA.* Accessed Oct. 17, 2016. http://www.whatscooking.fns.usda.gov/.

Equipment, Tools, Supplies, and Facilities

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

Key Terms. The following terms are presented in this lesson (shown in bold italics):

- ChooseMyPlate
- CVD
- DASH Eating Plan
- Dietary Guidelines for Americans (DGAs)
- Dietary Guideline shifts
- eating pattern
- enriched grains
- food-group equivalent
- healthy alternatives
- Healthy U.S.-Style Eating Pattern
- legume
- nutrient dense
- refined grains
- USDA
- variety

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

The Dietary Guidelines for Americans focuses on eating nutrient-dense foods and beverages in place of empty calories (Dietary Guidelines for Americans at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/).

Group Project:

PART 1: Introduction to Healthy Alternatives

1. *Divide the class into seven groups.*
2. *Goal 1: Identify healthy shifts in the ingredients used in food preparation categories.*
3. *Goal 2: Each group determines healthy substitutions to eat.*

4. *When instructed, each group reports to the class. If possible, the class adds additional shifts and healthy substitutions.*

PART 2: Group Discussion Categories

1. *Baked dessert preparations*
2. *Egg preparations*
3. *Meat, poultry, and fish preparations*
4. *Sauce/gravy preparations and commercial condiments*
5. *Soup (cream and broth) preparations*
6. *Salad and salad dressing preparations*
7. *Vegetables, fruits, and grains preparation*

PART 3: Shifts and Substitutions Example Report: White Rice Preparation

1. *Shift—Use less or no salt in preparing rice.*
2. *Shift—Do not add sugar to prepared rice.*
3. *Shift—Do not add butter to the finished product.*
4. *Substitution—Replace brown rice for white rice.*
5. *Substitution—Chia seeds or quinoa grain could replace some or all of the white rice in a recipe as a healthy substitute.*

[NOTE: Use VM–A to guide the Interest Approach.]

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Analyze the Dietary Guidelines for Americans (DGAs).

Anticipated Problem: What are the Dietary Guidelines for Americans?

I. Dietary Guidelines for Americans

A. Statute

1. The Dietary Guidelines statute (Public Law 101-445, 7 U.S.C. 5341 et seq.) requires the Dietary Guidelines for Americans (DGAs) be based on current scientific and medical knowledge. The ***Dietary Guidelines for Americans (DGAs)*** is a plan created to promote healthy habits in terms of food and bever-

age consumption. The summary of health and physical activity statistics used for the guidelines include positive and negative statistics.

2. Positive statistics
   a. There has been a decrease in deficiencies of essential nutrients.
   b. Many infectious diseases have been conquered.
   c. The majority of the U.S. population can anticipate a long and productive life.
3. Negative statistics
   a. Chronic diseases—many related to poor diet and physical inactivity—have increased.
   b. Half of American adults have one or more preventable diet-related chronic diseases (e.g., cardiovascular disease, type 2 diabetes, and obesity).
4. The Executive Summary of the Dietary Guidelines explains that research "has examined the relationship between eating patterns, health, and the risk of chronic disease." The results support dietary guidance.
5. The Dietary Guideline Advisory Committee (DGAC) says its work was guided by two fundamental realities.
   a. About half of all American adults (117 million individuals) have one or more preventable, chronic disease. Approximately two-thirds of U.S. adults (nearly 155 million individuals) are overweight or obese. These conditions have been highly prevalent for more than two decades. Poor dietary patterns, overconsumption of calories, and physical inactivity directly contribute to these disorders.
   b. Nutrition and physical activity are "strongly influenced by personal, social, organizational, and environmental contexts and systems" (page 13 at http://health.gov/dietaryguidelines/2015-scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf).
   c. Teacher Notes:
      (1) For charts explaining the influences, see http://health.gov/dietaryguidelines/2015-scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf beginning on page 30.
      (2) For the complete Scientific Report of the Dietary Guidelines Advisory Committee (DGAC), see http://health.gov/dietaryguidelines/2015-scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf. [NOTE: This 571-page report is a good resource for students. It illustrates the extent of the scientific and medical research used to develop the Dietary Guidelines.]

B. National Nutrition Monitoring and Related Research Act (NNMRRA)

1. The Dietary Guidelines for Americans are required under the 1990 NNMRRA to revise the Dietary Guidelines every five years to reflect the most current nutritional advice. The U.S. Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) publish the Dietary Guidelines for Americans. According to its website, the ***USDA*** is an organization that

provides leadership on agriculture, rural development, food, natural resources, nutrition, and related issues.

2. The guidelines are the basis for federal government nutrition education programs, federal nutrition assistance programs, nutrition education materials designed for the public, and dietary advice provided by health and nutrition professionals.

C. DGAs focus

1. The Dietary Guidelines format varies every five years.
2. The Dietary Guidelines 2015 to 2020 are for people ages two years and older and their families. [NOTE: The 2020 to 2025 DGAs include recommendations for infants from birth to two years and for pregnant women.]
   a. It is important to focus on an overall eating pattern instead of food groups and nutrients.
   b. It is best to encourage shifts to healthy eating patterns.
   c. It is critical to emphasize making nutrient-dense substitutes for foods and beverages in place of less healthy choices or increasing the overall calorie intake of nutrient-dense foods.
3. The five DGAs guidelines and details are stated directly.
   a. **Follow a healthy eating pattern across the lifespan.** All food and beverage choices matter, so it is critical to choose a healthy eating pattern at an appropriate calorie level to achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.
   b. **Focus on variety, nutrient density, and amount.** To meet nutrient needs within calorie limits, a person must choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.
   c. **Limit calories from added sugars and saturated fats, and reduce sodium intake.** It is necessary to consume an eating pattern low in added sugars, saturated fats, and sodium. It is best to cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.
   d. **Shift to healthier food and beverage choices.** It is important to choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Cultural and personal preferences should be considered to make these shifts easier to accomplish and maintain.
   e. **Support healthy eating patterns for all.** Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities. [The DGAs are found at https://health.gov/dietaryguidelines/2015/guidelines/executive-summary/ and http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/#figure-es-1-2015-2020-dietary-guidelines-for-americans-at-a-glan.]

Teaching Strategy: *techniques can be used to help students master this objective. Use VM–A and VM–B.*

Provide group practice with shifts to healthier alternatives by making a healthier variation of French toast. Following is the ingredient list for the Custardy French Toast (Betty Crocker 1969). Have the students read the ingredient list:

- *4 slices white bread*
- *3 whole eggs*
- *¾ cup milk*
- *1 tablespoon granulated sugar*
- *½ teaspoon salt*
- *2 tablespoons butter*
- *Honey or syrup (for service)*

Have the students identify healthy alternatives for each ingredient. Adjust amounts and variations of the ingredients as needed. Consider changes to whole grains and for saturated fat, added sugar, and added sodium. If this activity is completed in lab groups, each lab group could prepare its healthy alternative recipe. Students could look up additional recipes for French toast to identify other changes.

Student groups could create a cookbook of recipes that utilize alternatives and/or substitutions. Students would find and evaluate recipes for use of healthy alternatives. Divide the class into five groups. Have each group find five or more healthy alternative recipes in its assigned category. Cookbook categories are baking and pastry; dairy and eggs; meat, poultry, and fish; sauces, syrups, and dressings; and soups. Combine all recipes into a healthy lifestyle cookbook. Add the nutritional value of recipes, if available. Recipe sources may include:

- *What's Cooking? at http://www.whatscooking.fns.usda.gov/*
- *Cooking Light at http://www.cookinglight.com/food/recipe-finder*
- *Mayo Clinic healthy lifestyle recipes at http://www.mayoclinic.org/healthy-lifestyle/recipes*

Objective 2: Explain the DGAs healthy eating pattern recommendations.

Anticipated Problem: How do the Dietary Guidelines recommend healthy eating patterns across the lifespan?

II. Healthy eating patterns across the lifespan

A. Dietary Guidelines: Recommendations

1. Chapter 2 of the DGA's "Current Eating Patterns in the United States" explains that U.S. eating patterns generally do not align with the established guidelines.
2. About three-fourths of the population has an eating pattern that is low in vegetables, fruits, dairy, and oils.

3. More than half of the population is meeting or exceeding total grain and total protein food recommendations. However, they are not meeting the recommendations for the subgroups within each of these food groups.
4. Most Americans exceed the recommendations for added sugars, saturated fats, and sodium.
5. In addition, many people consume too many calories. Calorie intake over time, in comparison to calorie needs, is best evaluated by measuring body weight status. The high percentage of overweight or obese people suggests that many people eat too many calories. "More than two-thirds of all adults and nearly one-third of all children and youth in the United States are either overweight or obese." Key terms in the DGAs are eating patterns, nutrient density, and variety (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/current-eating-patterns-in-the-united-states/).

B. Eating pattern

1. An ***eating pattern*** (dietary pattern) is "the combination of foods and beverages that constitute an individual's complete dietary intake over time" (DGA Executive Summary on page 4 at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/).
2. A person should consume a healthy eating pattern within an appropriate calorie level. A healthy eating pattern includes the following foods:
   a. Fruits: Whole fruits or 100 percent juice can be fresh, canned in juice, frozen, or dried.
   b. Vegetables: A variety from all the subgroups (e.g., dark green, red and orange, legumes, starchy, and other) should be consumed. A ***legume*** is the fruit or edible part of a member of the bean, pea, and lentil family.
   c. Protein: A variety of seafood, lean meats and poultry, eggs, legumes, nuts, seeds, and soy products should be eaten.
   d. Dairy: Fat-free or low-fat dairy products (e.g., milk, yogurt, cheese, and/or fortified soy beverages) are recommended.
   e. Grains: A minimum of half the total required amount should be whole grains, and any consumed ***refined grains*** (small, hard seeds processed to remove the bran and germ) should be enriched grains. ***Enriched grains*** are processed seeds with the addition of iron and four B vitamins (thiamin, riboflavin, niacin, and folic acid) lost during processing.
   f. Oils: It is important to use healthy oils that are liquid at room temperature and have a higher percentage of monounsaturated and polyunsaturated fatty acids rather than saturated fats and trans fats.

C. Nutrient-dense foods

1. Nutrient-dense foods should be selected in the eating pattern. The DGA Executive Summary defines ***nutrient dense*** as food and drinks with vitamins, minerals, and other substances to aid with nutrition and health. Nutrient-dense items have little or no solid fats and added sugars, refined starches, and sodium. Ideally, they are "in forms that retain naturally occurring components,

such as dietary fiber" (DGA Executive Summary at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/).

2. The DGAs say that "nutrient dense" indicates that nutrients and other beneficial food substances are not "diluted" by the addition of calories from added solid fats, sugars, or refined starches, or by the solid fats naturally present in the food" (DGA Executive Summary at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/#callout-terms).

D. Variety

1. Variety is a key term described in the Dietary Guidelines. ***Variety*** is an assortment of consumables in all food groups and subgroups to reach the recommended amounts without exceeding caloric limits (DGA Executive Summary at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/).
2. Vegetables: A variety in vegetables includes the following subgroups: dark green, red and orange, legumes, starchy, and other. The recommendation is to include all subgroups throughout the week in a healthy eating pattern.
3. Meats: Variety in meats includes all types of meat consumed weekly. In a 2,000-calorie eating plan, 5½ ounces of equivalent protein should be consumed daily. The DGAs recommend 8 ounces of fish or seafood per week.

E. DGAs key recommendations on limiting components

1. It is important to limit added sugar to less than 10 percent of consumed calories per day. Natural sugars found in milk and fruit are not added sugar and are not calculated in that 10 percent. Examples of added sugars listed as an ingredient are:
   a. Brown sugar
   b. Corn sweetener
   c. Corn syrup
   d. Dextrose
   e. Fructose
   f. Glucose
   g. High-fructose corn syrup
   h. Honey
   i. Invert sugar
   j. Lactose
   k. Malt syrup
   l. Maltose
   m. Molasses
   n. Raw sugar
   o. Sucrose
   p. Trehalose
   q. Turbinado sugar (DGA Healthy Eating Patterns at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/)

2. It is essential to limit saturated fats to less than 10 percent of consumed calories per day. The main sources of saturated fats in U.S. diets are cheeseburgers, tacos, pizza, and pasta dishes. Research has proven that replacing saturated fats with unsaturated fats, especially polyunsaturated fats, typically reduces bad cholesterol levels. Also, using polyunsaturated fats rather than saturated fats reduces the risk of heart attacks and CVD-related deaths. ***CVD*** is cardiovascular disease, which involves the heart and blood vessels.
3. Consuming less than 2,300 milligrams of sodium per day is recommended. The main sources of sodium in U.S. diets are burgers, sandwiches, tacos, packaged rice, pasta dishes, grain dishes, pizza, seafood, and soups. Fresh meat and poultry often have a salt solution added to the fresh product to help retain moisture.
4. The DGAs include a short discussion on alcohol, which is not a component of the USDA food patterns and caffeine, which is a stimulant. [NOTE: For more information about caffeine and alcohol consumption, see the DGAs at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.]

F. Healthy U.S.-Style Eating Pattern

1. The DGAs recommend following a healthy eating pattern over time to support a healthy body weight and to reduce the risk of chronic disease. The eating patterns recommended are:
   a. Healthy U.S.-Style Eating Pattern
   b. MyPlate
   c. DASH
2. The ***Healthy U.S.-Style Eating Pattern*** is a healthful way to eat that focuses on nutrient-dense foods from major food groups and their subgroups. This eating pattern considers types and portions of foods Americans eat in these categories:
   a. Vegetables
   b. Fruits and juices
   c. Grains
   d. Milk and dairy
   e. Protein
   f. Oils
   g. Teacher notes:
      (1) See Table A3-1 Healthy U.S.-Style Eating Pattern: Recommended Amounts of Food From Each Food Group at 12 Calorie Levels located at http://health.gov/dietaryguidelines/2015/guidelines/appendix-3/.
      (2) See Table 1-2 Composition of the Healthy Mediterranean-Style and Healthy Vegetarian Eating Patterns at the 2,000-Calorie Level, with Daily or Weekly Amounts from Food Groups, Subgroups, and Components at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/examples-of-other-healthy-eating-patterns/#table-1-2.

3. ***ChooseMyPlate*** is a nutrition and wellness program developed by the USDA. MyPlate's online resources are based on Dietary Guidelines and include:
    a. MyPlate, MyWin (finding a healthy eating style that works for individuals and families)
    b. Super Tracker (a way to track food intake and physical exercise)
    c. MyPlate Daily Checklist (looks at targets for food groups and components to limit)
    d. The MyPlate recommendations include:
        (1) Half the plate should be fruit and vegetables.
        (2) Half of all grains should be whole grains.
        (3) Low-fat and fat-free dairy products should be used.
        (4) A variety of protein foods should be consumed.
        (5) Sodium, saturated fats, and added sugar should be limited.
4. The ***DASH Eating Plan*** (Dietary Approaches to Stop Hypertension) is a healthy way to eat that focuses on limiting saturated fatty acids and cholesterol and increasing the intake of foods with potassium, calcium, magnesium, protein, and fiber. The DASH Eating Plan is based on varied calories, depending on age, physical activity, and gender. It includes eating:
    a. Plenty of fruits and vegetables
    b. Whole grains
    c. Fat-free or low-fat dairy products
    d. Lean proteins (e.g., fish, poultry, beans, and nuts)
    e. Vegetable oils
    f. Limited amounts of foods high in saturated fat (e.g., fatty meats, full-fat dairy products, and tropical oils—such as coconut and palm oil)
    g. Limited amounts of sugar-sweetened beverages and sweets made with added sugar
5. Teacher notes:
    a. For more information about the science of the DASH-Sodium Trail and the OmniHeart Trail, see the Dietary Approaches to Stop Hypertension (DASH) call-out box on the Dietary Guidelines for Americans website at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/#table-1-1.
    b. For more information about the DASH calorie needs and number of servings for each calorie level, see the NHLBI website at http://www.nhlbi.nih.gov/health/health-topics/topics/dash/followdash.

Teaching Strategy: *Many techniques can be used to help students master this objective. Use VM–C. U.S. News and World Report Health named the DASH diet the "Best Diet Overall." Review the DASH Eating Plan on the National Heart, Lung, and Blood Institute website at http://www.nhlbi.nih.gov/files/docs/public/heart/dash_brief.pdf.*

A practical activity on DASH Eating Plan is "What's on Your Plate, and How Much Are You Moving?" on page 4. Have the students track their food and physical activity for one day. Then have them fill in a recommended food and physical activity tracking form for someone else on the DASH diet. Have students compare the recommended food intake and activity recommendations to their typical daily food intake and activity output. See page 3 for the recommended DASH plan.

Objective 3: Summarize dietary shifts to nutrient-dense foods and healthy alternatives.

Anticipated Problem: What are the recommended nutrient-dense foods and healthy alternatives shifts?

III. Dietary shifts

A. The ***Dietary Guidelines shifts*** are exchanges of typically eaten foods to nutrient-dense foods and healthy alternatives in the same food group. These shifts move an individual toward an overall healthy lifestyle.

B. Food-group equivalents and calorie count shifts

1. Shifts to keep the correct calorie count in a dietary plan include getting the correct serving size. Selecting nutrient-dense alternatives prevents excessive calories from unhealthy foods. [NOTE: Serving-size equivalents are found on the interactive Figure 1-1, Cup and Ounce Equivalents at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.]
2. A ***food-group equivalent*** is a comparable amount used as a standard of comparison. A food-group equivalent is used to calculate the number of portions of each food group to consume per day.
   a. A cup equivalent is a standard measure for the fruit, vegetable, and milk groups. For example, a cup equivalent is the amount of a food considered equal to one cup of cut-up fruit or vegetable. A cup equivalent in the milk group is equal to 1 cup of milk.
   b. An ounce equivalent is a standard measure for the grains, meats, and beans groups. For instance, an ounce equivalent is the amount of food considered equal to a one-ounce slice of bread or one ounce of dry cereal. In the meat and bean groups, one ounce is the amount of food considered equivalent to one ounce of cooked lean meat, poultry, or fish.
   c. Amounts vary with concentrated foods (e.g., raisins) and with food with more air or water (e.g., spinach).
      (1) Typically, ¼ cup of raisins equals a ½ cup equivalent of fresh fruit.
      (2) One cup of fresh spinach equals a ½ cup equivalent of fresh vegetables. [NOTE: Project the following, and view all the equivalents from Figure 1.1 at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.]

C. Healthy alternatives shifts

1. ***Healthy alternatives*** are a shift from typically eaten foods to the nutrient-dense foods in each food group. [NOTE: Project Figure 2-3 from http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3.]
2. The vegetable food group includes canned, frozen, fresh, dried, cooked, fresh, or juice from vegetables. Vegetables provide many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B_6, folate, iron, manganese, thiamin, niacin, and choline (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/).
   a. Equivalent: In a 2,000-calorie plan, individuals eat 2½ cups of vegetable equivalents per day.
   b. Recommendation: People should vary vegetables from the five subgroups: dark green, red and orange, legumes, starchy, and other each week. The remaining category includes iceberg lettuce, green beans, cucumbers, cabbage, zucchini, and more. [NOTE: See the DGA website's Appendix 3 for Table A 3-1 with a vegetable list in each subgroup and amounts for each calorie intake at http://health.gov/dietaryguidelines/2015/guidelines/appendix-3/.]
   c. When comparing typical and recommended equivalent servings of vegetables for age groups: Unsurprisingly, vegetable consumption is lowest among boys ages 9 to 13 years and girls ages 14 to 18 years. Consumption is a bit higher in adults, but "intakes are still below recommendations" (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#table-2-1). [NOTE: See DGA website Figure 2-4 of each vegetable subgroup, comparing age/sex with typical and recommended amounts at http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3.]
   d. Shift: For many Americans, the most commonly eaten vegetables are potatoes (21 percent) and tomatoes (18 percent). The shift should be to increase vegetable consumption and include all vegetable subgroups. Limit the use of salt, of vegetables in sauces with saturated fats (cream sauce), of fried vegetables (French fries), and of added sugar (candied vegetables, such as carrots and sweet potatoes).
3. The fruit food group includes canned, frozen, fresh, dried, cooked, fresh, and juice from fruits. Fruit provides dietary fiber, potassium, and vitamin C. Juice does not add fiber to the diet. Only 100 percent juice without added sugar is an equal fruit equivalent. One cup of 50 percent juice drinks is a ½ cup equivalent fruit (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/).
   a. Equivalent: The fruits in the Healthy U.S.-Style Eating Pattern at the 2,000-calorie eating plan are two cup equivalents per day.

b. Recommendation: The American Academy of Pediatrics recommends that children consume no more than 4 to 6 fluid ounces of 100 percent juice per day. Adding water to juice at home increases the volume without adding more calories.

c. Age groups: The typical consumption of fruits is below the recommended amount for most ages. Typically, children between the ages of 1 and 8 years meet recommended total fruit intakes, unlike the rest of the population. The average fruit intake—including juice—is lowest among girls (14 to 18 years of age) and adults (19 to 50 years of age). Older women (51 years and older) and young children consume fruits in amounts close to or meeting minimum recommended intakes.

d. Shift: The shift is to increase whole fruits and shift to fruits as snacks and dessert instead of sugar-added and saturated fat-loaded cakes, pies, cookies, and ice creams containing fruit pieces.

4. Grains include single food grain products (e.g., oats and rice) as well as products made with grain (e.g., breads and pasta). As a source of nutrients, grains can provide dietary fiber, iron, zinc, manganese, folate, magnesium, copper, thiamin, niacin, vitamin B_6, phosphorus, selenium, riboflavin, and vitamin A. Whole grains vary in their dietary fiber content. Most refined grains are enriched, which is a process that returns iron, thiamin, riboflavin, niacin, and folic acid because it is lost during processing (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/). Some frequently eaten whole-grain foods are whole-wheat breads, rolls, bagels, and crackers; oatmeal; whole-grain ready-to-eat cereals (e.g., shredded wheat and oat rings); popcorn; brown rice; and whole-grain pasta. Examples of refined grain foods are white bread, rolls, bagels, and crackers; pasta; pizza crust; grain-based desserts; refined grain ready-to-eat cereals (e.g., corn flakes and crispy rice cereal); corn and wheat tortillas; white rice; and cornbread (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3).

   a. Equivalents: In a 2,000-calorie diet, the Healthy U.S.-Style Eating Pattern recommends 6 ounces of equivalent grains per day.

   b. Recommendations: Half or more of all grains eaten daily should be whole grains. Refined and enriched grains are recommended. Cakes, cookies, and grain-type snack foods that are high in saturated fats and added sugar should be limited or avoided. [NOTE: See the DGA website's call-out box: "How to Make at Least Half of Grains Whole Grains" at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.]

   c. Age groups: Typically, Americans exceed the recommendation for refined grains and are well below the recommendation for whole grains. [NOTE: For more information about age/sex with refined and whole grain consumption patterns, see the DGA website's Figure 2-5 at http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3.]

d. Shift: The recommended shift is to increase whole grains and reduce the consumption of refined grains. Consuming 100 percent whole-wheat breads, whole grain pasta, and brown rice is recommended. Generally, people need to reduce snacks and desserts from refined grains with added sugar and saturated fats (e.g., cakes, pies, and cookies).

5. The dairy food group includes fat-free and low-fat (1 percent) milk, yogurt, cheese, and soy milk. This group does not include almond, rice, or coconut milk. Dairy contributes many nutrients, including calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B_{12}, protein, potassium, zinc, choline, magnesium, and selenium (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/). Lactose-intolerant people can select lactose-free dairy products or supplement the diet with other foods for the calcium, vitamin D, and potassium.
   a. Equivalents: The recommendation on serving varies with age. Dairy recommendations in the Healthy U.S.-Style Pattern are based "on age rather than calorie level." They are 2 cup equivalents per day for children ages 2 to 3 years, 2½ cup equivalents per day for children ages 4 to 8 years, and 3 cup equivalents per day for adolescents (9 to 18 years of age) and for adults (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/).
   b. Recommendations: Fat-free and low-fat (1 percent) dairy products are recommended because they provide the same nutrients but less fat (and thus, fewer calories) than higher fat options (e.g., 2 percent or whole milk and regular cheese). Fat-free or low-fat milk and yogurt, in comparison to cheese, contain less saturated fats and sodium and more potassium, vitamin A, and vitamin D. As a result, this increases fat-free or low-fat milk or yogurt intake and decreases saturated fat and sodium while increasing potassium, vitamin A, and vitamin D provided from the dairy group.
   c. Age groups: The typical dairy intake is far below the recommended for all age groups, except ages 1 to 3 years.
   d. Shift: The Dietary Guideline shift includes changing to fat-free and low-fat forms of dairy. According to DGA, fluid milk (51 percent) and cheese (45 percent) comprise most dairy consumption. Yogurt (2.6 percent) and fortified soy beverages (1.5 percent) make up the rest of dairy intake. About three-fourths of all milk is consumed as a beverage or on cereal. Cheese, however, is most commonly consumed as part of mixed dishes, such as burgers, sandwiches, tacos, pizza, and pasta dishes (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3).
6. The protein food group includes subgroups of seafood, meats, poultry, eggs, and nuts, seeds, and soy products. According to DGA, these foods are important sources of nutrients and protein, including B vitamins (e.g., niacin, vitamin B_{12}, vitamin B_6, and riboflavin), selenium, choline, phosphorus, zinc, copper,

vitamin D, and vitamin E (http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/).

a. Equivalents: In a 2,000-calorie diet, the Healthy U.S.-Style Eating Pattern recommends 5½ ounces equivalent protein per day. Seeds and nuts, which are high in calories and protein, should be in place of other protein foods instead of additional calories. At least 8 ounces of equivalent seafood protein should be consumed per week. It is best to select mostly low methyl mercury seafood (e.g., salmon, herring, shad, sardines, Pacific oysters, trout, and mackerel).
b. Recommendations: A smaller intake of meats and processed meat reduces the risk of cardiovascular disease. The healthy methods of preparing protein foods are broiling, grilling, roasting, and poaching. Yet it is still healthy to use a small amount of oil in stir-fry or sauté. Lean meats should be selected. Poultry skin is high in fat. In addition, prime meats contain more saturated fats. It is wise to decrease the consumption of processed meats, which are high in sodium and saturated fats.
c. Age groups: In all age groups, the Dietary Guidelines state that protein foods include beef (especially ground beef), chicken, pork, processed meats (e.g., hot dogs, sausages, ham, luncheon meats), and eggs. The most common seafood choices are shrimp, tuna, and salmon. The most common nut choices are peanuts, peanut butter, almonds, and mixed nuts. Slightly less than half (49 percent) of all protein foods are consumed as a separate food item (e.g., a chicken breast, a steak, an egg, a fish filet, or peanuts). About the same proportion are consumed as part of a mixed dish (45 percent), with the largest amount from burgers, sandwiches, and tacos (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3).
d. Shift: The Dietary Guideline shift recommendations for protein include strategies to increase protein variety, such as eating seafood meals twice per week and using legumes or nuts and seeds in mixed dishes instead of meat. Selecting nutrient-dense options will “improve nutritional quality” and “support healthy eating patterns.” Some people, especially teen boys and adult men, need to reduce their overall intake of protein (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3).

7. The oils food group provides essential fatty acids and vitamin E.
   a. Equivalents: In a 2,000-calorie diet, the Healthy U.S.-Style Eating Pattern recommends 27 grams or 5 teaspoons equivalent oil per day.
   b. Recommendations: It is important to select oils high in monounsaturated and polyunsaturated fats: corn, peanut, canola, olive, safflower, soybean, and sunflower. Those high in saturated fats are coconut, palm kernel, and palm oils.
   c. Age groups: Aside from definitions of all types of fats, a DGA call-out box includes Figure 1-2, which is a profile of solid fats and oils and the

proportion of saturated, monounsaturated, and polyunsaturated fats in each. [NOTE: See the DGA website's call-out box on "Dietary Fats: The Basic" at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.]

d. Shift: The Dietary Guidelines recommend the shift from solid fats to oils. People should use oils rather than solid fats in food preparation, if possible. For instance, people can use vegetable oil in place of solid fats (e.g., butter, stick margarine, shortening, lard, and coconut oil) when cooking. People may increase the intake of foods that naturally contain oils (e.g., seafood and nuts) in place of some meat and poultry. Also, people may choose other foods (e.g., salad dressings and spreads) made with oils instead of solid fats (http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3). [NOTE: Project the slide presentation from the DGA website's Figure 2-2, "Empower People to Make Healthy Shifts" at http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/current-eating-patterns-in-the-united-states/].

Teaching Strategy: *Many techniques can be used to help students master this objective. Use VM–D.*

Project the DGA website's Figure 1-3 "Hidden Components in Eating Patterns" at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/#table-1-1. This interactive figure shows the sodium, saturated fat, and added sugar in a healthy breakfast, lunch, and dinner menu within 2,000 calories as well as the recommendations for sodium, saturated fat, and added sugar.

The Heartland Regional Medical Center article, "2 Sides to the Healthy Eating Story" is available at The Healthy Advantage, Vol. 8, Issue 2 at http://HeartlandRegional.com/signup. The article discusses three studies that show positive, negative, and two-sided informational messages about food. Those who received negative messages chose 30 percent unhealthier snacks than participants who saw positive messages. The subjects who receive the positive and negative information chose 47 percent fewer unhealthy snacks than those who saw the negative message. Present the positive (healthy lifestyle, less risk of chronic disease) and negative (difficult habits to break, caffeine withdrawal, etc.) aspects of making healthy lifestyle shifts. See the article about caffeine withdrawal at http://www.webmd.com/balance/caffeine-myths-and-facts.

Project the DGA website's Figure 2-8, "Typical vs. Nutrient-Dense Foods and Beverages" at http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/#figure-2-3. Then divide students into five teams to come up with 5 to 10 additional "typical vs. nutrient-dense comparisons" and present those to the class. Each team would take one of the food groups. Assign LS–A.

Review/Summary.

Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. If a textbook is being used, questions at the ends of chapters may be included in the Review/Summary.

Application.

Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

Evaluation.

Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

Answers to Sample Test:

Part One: Matching

1. e
2. d
3. a
4. j
5. g
6. c
7. i
8. b
9. h
10. f

Part Two: True/False

1. F
2. T
3. T
4. F
5. T
6. F
7. F
8. T
9. T
10. T

Part Three: Short Answer

1. Answers will vary and should be similar to the following: The purpose of the Dietary Guidelines for Americans, as stated in the Executive Summary is: Research has

suggested the relationship between overall eating patterns, health, and the risk of chronic disease. Therefore, it supports dietary guidance. The guidelines are revised every five years to reflect the most current nutritional advice.

2. Answers will vary and should be similar to the following: Dietary Guidelines shifts are exchanges of typically eaten foods for nutrient-dense foods and healthy alternatives in the same food group. These shifts move an individual toward an overall healthy lifestyle. Shifts to keep the correct calorie count in a dietary plan include getting the correct serving sizes. Selecting nutrient-dense alternatives prevents excessive calories from unhealthy foods.
3. Answers will vary and should be similar to the following: A food-group equivalent is a comparable amount used as a standard of comparison. Food-group equivalents are used to calculate the number of portions of each food group to consume per day.
   a. A cup equivalent is a standard measure for the fruit, vegetable, and milk groups. A cup equivalent is the amount of a food considered equal to one cup of cut-up fruit or vegetable. A cup equivalent in the milk group is equal to 1 cup of milk. [NOTE: Other examples are provided in Objective 3.]
   b. An ounce equivalent is a standard measure for the grains, meats, and beans groups. For instance, an ounce equivalent is the amount of food considered equal to a one-ounce slice of bread or one ounce of dry cereal. In the meat and bean groups, one ounce equivalent is the amount of food considered equivalent to one ounce of cooked lean meat, poultry, or fish.

Sample Test

Name _____

Dietary Guidelines and Healthy Alternatives

Part One: Matching

Instructions: **Match the term with the correct definition.**

a. CVD
b. eating pattern
c. enriched grains
d. food-group equivalent
e. healthy alternatives
f. legume
g. nutrient dense
h. refined grains
i. USDA
j. variety

_____1. A shift from typically eaten foods to the nutrient-dense foods in each food group
_____2. A comparable amount used as a standard of comparison
_____3. Cardiovascular disease (involving the heart and blood vessels)
_____4. An assortment of consumables in all food groups and subgroups to reach the recommended amounts without exceeding caloric limits
_____5. Food and drinks with vitamins, minerals, and other substances to aid with nutrition and health
_____6. Processed seeds with the addition of iron and four B vitamins: thiamin, riboflavin, niacin, and folic acid
_____7. An organization that provides leadership on agriculture, rural development, food, natural resources, nutrition, and related issues
_____8. The combination of foods and beverages that constitute an individual's complete dietary intake over time
_____9. Small, hard seeds processed to remove the bran and germ
____10. The fruit or edible part of a member of the bean, pea, and lentil family

Part Two: True/False

Instructions: **Write *T* for true or *F* for false.**

_____1. The DGA recommends selecting oils high in saturated fats.

_____2. At least 8 ounces of equivalent seafood protein should be consumed per week.

_____3. Half or more of all grains eaten daily should be whole grains.

_____4. The fruit subgroups are dark green, red, and orange.

_____5. The DGAs recommend consuming less than 2,300 milligrams of sodium per day.

_____6. Limit your saturated fat consumption to less than 20 percent of calories per day.

_____7. Limit your added-sugar consumption to less than 10 percent of calories per day.

_____8. The Dietary Guidelines are used by the federal government nutrition education programs.

_____9. The National Nutrition Monitoring and Related Research Act requires the publishing of the Dietary Guidelines for Americans.

____10. A growing body of research has examined the relationship between overall eating patterns, health, and the risk of chronic disease. Findings on these relationships support dietary guidance.

Part Three: Short Answer

Instructions: **Answer the following.**

1. What is the purpose of the Dietary Guidelines? How often are they revised?

2. Define how the term “Dietary Guidelines shifts” is used by explaining how a shift relates to nutrient-dense foods.

3. Describe food-group equivalents. Give an example of a cup-equivalent and an ounce-equivalent for food groups.

VM–A

INTRODUCTION TO DIETARY GUIDELINES AND HEALTHY ALTERNATIVES

The Dietary Guidelines for Americans promotes substitutions, such as selecting nutrient-dense foods and beverages in place of less healthy choices.

Categories

1. Baked dessert preparations
2. Egg preparations
3. Meat, poultry, and fish preparations
4. Sauce/gravy preparations and commercial condiments
5. Soup (cream and broth) preparations
6. Salad and salad dressing preparations
7. Vegetables, fruits, and grains preparation

Shifts and Substitutions: Example (White Rice Preparation)

1. Shift—Use less or no salt in preparing rice.
2. Shift—Do not add sugar to prepared rice.
3. Shift—Do not add butter to the finished product.
4. Substitution—Replace brown rice for white rice.
5. Substitution—Chia seeds or quinoa grain could replace some or all of the white rice in a recipe as a healthy substitute.

VM–B

DIETARY GUIDELINES WEBSITES

- Figure ES-1 at http://health.gov/dietaryguidelines/2015/guidelines/executive-summary/#figure-es-1-2015-2020-dietary-guidelines-for-americans-at-a-glan
- Table I-1 at http://health.gov/dietaryguidelines/2015/guidelines/introduction/nutrition-and-health-are-closely-related/#table-i-1
- Key Recommendations: Components of Healthy Eating Patterns at http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/key-recommendations/
- In Part B. Chapter 1: Introduction, see Figure B2.1 at http://health.gov/dietaryguidelines/2015-scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf

HEALTH EATING PATTERN RESOURCES

- What's Cooking?—USDA Mixing Bowl: http://www.whatscooking.fns.usda.gov/
- MyPlateMyWins: http://www.cnpp.usda.gov/sites/default/files/dietary_guidelines_for_americans/MyPlateMyWinsTips.pdf
- DASH Eating Plan: http://www.nhlbi.nih.gov/health/health-topics/topics/dash
- A Closer Look Inside Healthy Eating Patterns—Table 1-1: http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/#table-1-1
- Examples of Other Healthy Eating Patterns—Table 1-2: http://health.gov/dietaryguidelines/2015/guidelines/chapter-1/examples-of-other-healthy-eating-patterns/#table-1-2

RESOURCES FOR DIETARY SHIFTS TO NUTRIENT-DENSE FOODS AND HEALTHY ALTERNATIVES

- Current Eating Patterns in the United States—Figure 2-1: http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/current-eating-patterns-in-the-united-states/
- A Closer Look at Current Intakes and Recommended Shifts—Figure 2-10, Figure 2-12 and Figure 2-14: http://health.gov/dietaryguidelines/2015/guidelines/chapter-2/a-closer-look-at-current-intakes-and-recommended-shifts/

LS–A

Name _____

Your Healthy Lifestyle Food Profile

Purpose

The purpose of this activity is to use ChooseMyPlate resources to understand your recommended food profile.

Objectives

1. Develop your food profile.
2. Track your typical daily meal plan.
3. Evaluate a meal plan that follows the shifts recommended by the Dietary Guidelines for Americans.

Materials

- lab sheet
- device with Internet
- printer
- paper
- pencil
- stapler

Procedure

1. Record everything you eat and drink for one day (or record your typical day's menu). Indicate the amounts of each food and beverage and the mealtimes associated with each item (e.g., breakfast, lunch, snack, dinner, and snack).
2. Go to the USDA's ChooseMyPlate website at http://www.choosemyplate.gov. Use the online tool dropdown to select "Super Tracker." Create your profile. View your plan, and

print a copy. The plan lists each food group, the amounts, what counts as an equivalent, and tips for following the Dietary Guidelines.

3. Next, use the "Food Tracker" to log in to your typical day's menu (using the record of food and beverage consumption you created in Procedure 1).

   a. Type each food item name in the box.
   b. Select the appropriate food. Choose the amount.
   c. Select the mealtime.
   d. Add food items. [NOTE: This tool will keep a running total of your food groups and calories. It will also track added sugar, saturated fat, and sodium content.] Continue until you have input all the typical foods eaten in one day.
   e. Print the report.

4. Write a summary comparing your amounts to the recommended food group amounts and total calories for the day. Attach a printed report of your summary, and submit it to the instructor as directed.

5. Now write a menu for one day, following the suggested recommendations from the ChooseMyPlate tools in each food group. Make the shift to using nutrient-dense foods. Submit your plan to your instructor as directed.

   a. If directed, track the recommended menu. Did your written menu meet the requirements?
   b. If directed by the instructor, select one or more recipes from the USDA's "What's Cooking" website at http://www.whatscooking.fns.usda.gov/. Add your selected recipes to your online cookbook.

6. Turn in your completed lab sheet with attachments to your instructor.

Your Healthy Lifestyle Food Profile

1. Lab option: The selected recipes from the USDA website, "What's Cooking," could be incorporated into a culinary arts lab.
2. Menu planner option: The "What's Cooking" website, at http://www.whatscooking.fns.usda.gov/, has a menu planner option. This tool was not operational at the time the lesson was written. Check the menu planner for an alternate or additional lab activity.
3. Super tracker option: For Super Tracker User Guides, Lesson Plans for High School, and other guides, see the ChooseMyPlate website at https://www.supertracker.usda.gov/userguide.aspx.
4. Review the ChooseMyPlate "MyReports" tab for various available reports at https://www.supertracker.usda.gov/userguide.aspx.