The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford and is operated in collaboration with The University of Southern Mississippi in Hattiesburg. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

PURPOSE
The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

MISSION
The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION
The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

This project has been funded at least in part with Federal funds from the U.S. Department of Agriculture, Food and Nutrition Service through an agreement with the National Food Service Management Institute at The University of Mississippi. The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

The University of Mississippi is an EEO/AA/TitleVI/Title IX/Section 504/ADA/ADEA Employer.

In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability.

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights; Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

© 2014, National Food Service Management Institute, The University of Mississippi

Except as provided below, you may freely use the text and information contained in this document for non-profit or educational use with no cost to the participant for the training providing the following credit is included. These materials may not be incorporated into other websites or textbooks and may not be sold.

Suggested Reference Citation:

The photographs and images in this document may be owned by third parties and used by The University of Mississippi under a licensing agreement. The University cannot, therefore, grant permission to use these images.

For more information, please contact nfsmi@olemiss.edu. 07/2014
CONTENTS

Overview of Nutrition 101: A Taste of Food and Fitness

1  Lesson 1–Nutrition Is Important to You!

2  Lesson 2–Tools for Guiding Food Choices

3  Lesson 3–Macronutrients: The Energy Nutrients

4  Lesson 4–Micronutrients: Vitamins and Minerals

5  Lesson 5–Special Diets

6  Lesson 6–Putting it All Together

7  Lesson 7–Nutrition Issues in the Media
Seminar Objective Overview of Nutrition 101: A Taste of Food and Fitness

Nutrition 101: A Taste of Food and Fitness provides a basic overview of nutrition. Each lesson will incorporate a variety of learning activities to engage you on a personal level. Most of the lessons will also describe how school nutrition programs contribute to students’ health and ability to learn.

After completing the Nutrition 101: A Taste of Food and Fitness seminar, participants will be able to:

- Identify a personal interest in health and nutrition.
- Recall at least three roles nutrition plays in promoting health.
- Compare a personal 24 Hour Food Recall with a 24 Hour Exercise Recall.
- Practice a simple counting steps physical activity.
- Identify the Dietary Guidelines for Americans 2010 (DGA’s).
- Identify USDA’s MyPlate icon.
- Identify information on the Nutrition Facts label useful in making food choices consistent with the dietary advice of the DGA’s 2010 and MyPlate.
- Describe at least two ways school meal programs may reflect the appropriate aspects of the DGA’s 2010 which contribute to students health.
- Identify essential macronutrients, the major function each plays in a healthy body, and food sources of each.
- Identify food sources of simple sugars and how the body uses them.
- Describe how the different types of fatty acids influence health and chronic disease risk.
- Describe how school meals are planned to balance nutrients and contribute to students’ health.
- Identify essential micronutrients, the major function each plays in a healthy body, and food sources of each.
- List the fat soluble vitamins.
- List the water soluble vitamins.
- Identify major and trace minerals of concern in students’ diets.
- Identify the differences between the four vegetarian diets (lacto-ovo, lacto, ovo, and vegan).
- Describe how plant-based foods can provide complete proteins.
- Describe the difference between Type 1 and Type 2 diabetes.
- Identify an area of personal eating/food choices for improvement.
- Determine how many extra calories are consumed with larger portion sizes.
• Describe how school meals can incorporate students’ taste preferences to contribute to students’ health.
• Identify at least one common sign of misleading nutrition information in the media.
• Determine at least two ways school nutrition programs can be a source of credible nutrition information for the children and adults accessing the program.
NUTRITION 101: A Taste of Food and Fitness

Lesson 1
Nutrition Is Important to You!
Pre/Post Quiz

1. Those with a family history of a disease, such as diabetes, may reduce their risk of developing the disease if they
   a. Live a healthful lifestyle with balanced food and activity choices
   b. Continue their current activity level since developing diabetes is inevitable
   c. Adhere to a strict dietary restriction of all carbohydrate foods
   d. Limit the amount of calories consumed

2. The MyPlate graphic
   a. Supports the messages from the Dietary Guidelines for Americans 2010
   b. Only includes green leafy vegetables
   c. Shows a simple timeline for a nutrition plan
   d. Does not fit into a healthy lifestyle plan

3. A food label is required to list ingredients
   a. In alphabetical order
   b. In order of most to lease quantity in the food product
   c. If not commonly known
   d. Only if the manufacturer wants to share the product recipe

4. Food sources of simple sugars include
   a. Apples
   b. Soft drinks, candies, and desserts
   c. Milk and yogurt
   d. All of the above

5. Iron is an important nutrient because
   a. Iron is needed to prevent night blindness
   b. All American children are iron deficient
   c. Iron carries oxygen to various parts of the body
   d. Iron status determines bone density

6. The best sources of Vitamin A are
   a. Milk and dark green/orange fruits and vegetables
   b. Whole grains
   c. Dried beans, peas, and lentils
   d. Bananas, onions, and garlic
7. Most Americans
   a. Get plenty of exercise
   b. Need larger portions of meat in their diets
   c. Can improve health through regular, enjoyable physical activities
   d. Get enough calcium every day for strong bones

8. School meals contribute to the health and school achievement of students by
   a. Providing a balance of protein, carbohydrate, and fat for sustained energy with great taste
   b. Providing only low-fat foods
   c. Providing nutrition education activities to all students
   d. Providing only those foods that are familiar to students

9. Nutrition information on the Internet
   a. Is the most reliable source of scientific information available today
   b. Should be viewed carefully for accuracy because anyone can create a website
   c. Is screened for accuracy before it is placed on the web to assure its accuracy
   d. Is posted by reliable scientists or nutrition professionals so you do not have to worry if it is accurate

10. The Dietary Guidelines encourage Americans
    a. To eat half their foods each day from grain sources
    b. To limit fat, sodium, and fiber intake
    c. To increase intakes of whole grains, fruits, vegetables, and low-fat milk
    d. To drink fruit juice frequently

11. The fiber from fruits, vegetables, and whole grains may reduce the risk of developing
    a. Osteoporosis
    b. Macular degenerative disease
    c. Heart disease and type 2 diabetes
    d. Osteoarthritis and lung cancer

12. Dietary Guidelines for Americans are
    a. Based on the needs of healthy individuals
    b. Revised every ten years based on current research
    c. Intended for Americans ages 2 years and older, including those at increased risk of chronic disease
    d. Required to use the same serving sizes for each of the food groups

13. A food label is required to list natural and added sugars separately.
    a. True
    b. False
14. Eating too much sugar will cause high blood pressure and diabetes
   a. True
   b. False

15. Oils are
   a. Solid at room temperature
   b. Sources of healthy fats (mono- and polyunsaturated fatty acids)
   c. Provide only non-essential fatty acids
   d. Made of only one type of fatty acid called polymonic acid

16. *Trans* fatty acids
   a. Are a type of healthy fat to be encouraged in the diet
   b. Decrease the risk of heart disease
   c. Are often man-made from vegetable oils processed to hold more hydrogen
   d. Are a type of essential fatty acid

17. Vitamin C is needed in the body for all of these needs except
   a. Promote healthy immune system
   b. Form collagen, part of healthy bones and ligaments
   c. Prevent goiter
   d. Increase absorption of non-heme iron

18. Time, price, convenience, and taste are factors that influence food choices.
   a. True
   b. False

19. Taste preferences
   a. Are based in both genetics and experience and can be changed over time
   b. Are determine by genetics and cannot be changed
   c. Are solely learned behaviors
   d. Are set by 24 months and do not vary

20. The natural flavor in foods can be enhanced by all of the following except
   a. Preparation techniques such as toasting seeds or nuts
   b. Slow cooking
   c. Serving tart foods cold
   d. Using lemon juice on foods with bitter flavor such as salad greens or Brussels sprouts

21. Portion sizes
   a. Do not matter as long as a food is low in fat
   b. Have become larger for many foods over the last 20 years
   c. Are regulated in restaurants to meet a national standard
   d. Are not used in school meal programs
22. Fluid needs
   a. Can be met with water, beverages, and foods
   b. Are not a concern in nutrition
   c. Are the same for all people
   d. Can only be met with water
## 24 Hour Food Recall

<table>
<thead>
<tr>
<th>Food/Beverage Item</th>
<th>Serving Size</th>
<th>Time Consumed</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# 24 Hour Exercise Recall

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Heavy, Moderate or Light Aerobic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stretching, Yoga, Light Movement</td>
</tr>
</tbody>
</table>

How does this compare to your dietary intake?

Have you done something aerobic in the last 24 hours?
Self Discovery

What did you learn about your eating and activity habits? ________________________________

______________________________________________________________________________

______________________________________________________________________________

What is one change you want to make after completing this activity? ______________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Make a plan for change.

I plan to:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

I will do this by:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

If this plan does not work, I will try:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Healthy Eating and Healthy Weight

Balance is the key to enjoyable eating and maintaining a healthy weight. Tip the scales in your favor by following the ideas below.

Balance calories eaten with daily activity.

Calories do count. To keep a healthy weight, balance the calories from foods with the calories burned in daily work and play. If you want to lose weight, do it the healthy way. Each day, decrease calories eaten a little and increase calories burned a little. For example, eating 100 fewer calories a day for one year can result in a 10-pound weight loss. If you burn an extra 100 calories a day for a year through increased activity, you could lose another 10 pounds.

Here is a simple example. If you drink a regular soda daily, choose the 12-ounce can instead of the 20-ounce bottle. The smaller portion will reduce calories by about 100 per day. Walk briskly for 15 minutes after work on the school track and for 15 minutes after dinner in your neighborhood. It all adds up, or rather, subtracts from your weight. These two simple changes could result in a 20-pound weight loss in a year! Then try to reduce the number of days you drink soda in a week.

Balance meals throughout the day.

Meals regularly spaced throughout the day are a way to balance eating. Some people find three meals and a snack, evenly spaced, are just right to fuel work and play. Others find three small meals and three small snacks work better to keep hunger at bay. The key is to watch portion sizes and avoid overeating. Think of your stomach as having a gauge that indicates fullness from 0 (starving) to 10 (stuffed). Pay attention to when you start to feel full—that might be rated in the 7-8 range. Let the fullness of your stomach, not the emptiness of your plate, help you decide when you have eaten enough. Eating slowly also helps your brain sense you are full.

Balance choices among food groups.

Take a second look at your food habits. Are you leaving any food groups out of your daily food choices? Mix up the food groups between meals and snacks to have enough of each group. Most people need more fruits, vegetables, low-fat milk and milk products, and whole grains. Come up with interesting snack ideas featuring these foods.

Balance choices within food groups.

How many different foods do you eat in a day? In a week? In a month? Try to expand the number of fruit and vegetable choices eaten over the course of a week. Try to have a different color, such as orange, red, or dark green, at every meal or snack. Enjoy plant sources of protein as well as meats. Select whole grains such as brown rice and whole wheat bread. Mix up choices from the milk group. Select milk, cheese, and yogurt. Be adventurous. Try new choices and enjoy the great flavors you discover.
For delicious, nutritious meals

- Pick plenty of produce. Strive for 5-9 servings of fruits and vegetables each day.
- Grab wholesome grains. Include at least 6 servings daily, with half from whole grain choices.
- Count on calcium-rich milk. Choose 3 servings of fat-free or low-fat dairy products each day.
- Mix up meat, fish, and beans. Consume 4-6 ounces total of lean meat choices a day.
  Try to
  - Select 4 to 6 ounces of salmon, tuna, or other fatty fish a few times a week.
  - Include dried beans, legumes, and peas several times a week.
- Nibble on nuts. Grab a small handful a few times a week. Look for unsweetened, raw, or dry roasted.
- Savor a sweet dessert or salty snack. Eat these foods every once in a while in small portions.

Choose these foods each day to fill you up without filling you out. When more of your plate is full of fruits, vegetables, and whole grains, there is less room for fatty foods, salty snacks, and sweets.

Check out myplate.org to find more about healthy lifestyle habits.
NUTRITION 101:
A Taste of Food and Fitness

Lesson 2
Tools for Guiding Food Choices
Dietary Guidelines 2010

Take action on the Dietary Guidelines for Americans by making changes in these areas. Choose steps that work for you and start today.

Balancing Calories

• Enjoy your food, but eat less.
• Avoid oversized portions.
• Consume only enough to meet your needs.
• Be physically active.

Foods and Food Components to Increase

• Make half your plate fruits and vegetables.
• Make at least half of your grains whole grains.
• Switch to fat-free or low-fat (1%) milk.
• Drink water.

Foods and Food Components to Reduce

• Choose foods lower in sodium and sugar.
• Limit sugary drinks.
• Choose foods low in fat and saturated fat.
• Avoid trans fat.

**salt and sodium**

**10 tips to help you cut back**

It’s clear that Americans have a taste for salt, but salt plays a role in high blood pressure. Everyone, including kids, should reduce their sodium intake to less than 2,300 milligrams of sodium a day (about 1 teaspoon of salt). Adults age 51 and older, African Americans of any age, and individuals with high blood pressure, diabetes, or chronic kidney disease should further reduce their sodium intake to 1,500 mg a day.

1. **think fresh**
   Most of the sodium Americans eat is found in processed foods. Eat highly processed foods less often and in smaller portions—especially cheesy foods, such as pizza; cured meats, such as bacon, sausage, hot dogs, and deli/luncheon meats; and ready-to-eat foods, like canned chili, ravioli, and soups. Fresh foods are generally lower in sodium.

2. **enjoy home-prepared foods**
   Cook more often at home—where you are in control of what’s in your food. Preparing your own foods allows you to limit the amount of salt in them.

3. **fill up on veggies and fruits—they are naturally low in sodium**
   Eat plenty of vegetables and fruits—fresh or frozen. Eat a vegetable or fruit at every meal.

4. **choose dairy and protein foods that are lower in sodium**
   Choose more fat-free or low-fat milk and yogurt in place of cheese, which is higher in sodium. Choose fresh beef, pork, poultry, and seafood, rather than those with salt added. Deli or luncheon meats, sausages, and canned products like corned beef are higher in sodium. Choose unsalted nuts and seeds.

5. **adjust your taste buds**
   Cut back on salt little by little—and pay attention to the natural tastes of various foods. Your taste for salt will lessen over time.

6. **skip the salt**
   Skip adding salt when cooking. Keep salt off the kitchen counter and the dinner table. Use spices, herbs, garlic, vinegar, or lemon juice to season foods or use no-salt seasoning mixes. Try black or red pepper, basil, curry, ginger, or rosemary.

7. **read the label**
   Read the Nutrition Facts label and the ingredients statement to find packaged and canned foods lower in sodium. Look for foods labeled “low sodium,” “reduced sodium,” or “no salt added.”

8. **ask for low-sodium foods when you eat out**
   Restaurants may prepare lower sodium foods at your request and will serve sauces and salad dressings on the side so you can use less.

9. **pay attention to condiments**
   Foods like soy sauce, ketchup, pickles, olives, salad dressings, and seasoning packets are high in sodium. Choose low-sodium soy sauce and ketchup. Have a carrot or celery stick instead of olives or pickles. Use only a sprinkling of flavoring packets instead of the entire packet.

10. **boost your potassium intake**
    Choose foods with potassium, which may help to lower your blood pressure. Potassium is found in vegetables and fruits, such as potatoes, beet greens, tomato juice and sauce, sweet potatoes, beans (white, lima, kidney), and bananas. Other sources of potassium include yogurt, clams, halibut, orange juice, and milk.

Go to www.ChooseMyPlate.gov for more information.
Dietary Guidelines

U.S. Department of Health and Human Services and U.S. Department of Agriculture have released the Dietary Guidelines for Americans. The guidelines encourage us to make smart choices from every food group. The best way to give your body the balanced nutrition it needs is by eating a variety of nutrient-packed foods every day. Just be sure to stay within your daily calorie needs.

A healthy eating plan is one that:

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products.
- Includes lean meats, poultry, fish, beans, eggs, and nuts.
- Is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars.

Mix up your choices within each food group.

- Focus on fruits. Eat a variety of fruits whether fresh, frozen, canned, or dried—rather than fruit juice for most of your fruit choices. For a 2,000-calorie diet, you will need 2 cups of fruit each day (i.e., 1 small banana, 1 large orange, and 1/4 cup of dried apricots or peaches).
- Vary your veggies. Eat more dark green veggies, such as broccoli, kale, and other dark leafy greens; orange vegetables, such as carrots, sweet potatoes, pumpkin, and winter squash; and beans and peas, such as pinto beans, kidney beans, black beans, garbanzo beans, split peas, and lentils.
- Get your calcium-rich foods. Get 3 cups of low-fat or fat-free milk or an equivalent amount of low-fat yogurt and/or low-fat cheese (1 1/2 ounces of cheese equals 1 cup of milk) every day. For kids aged 2-8, it is 2 cups of milk. If you don’t or can’t consume milk, choose lactose-free milk products and/or calcium-fortified foods and beverages.
- Make half your grains whole. Eat at least 3 ounces of whole-grain cereals, breads, crackers, rice, or pasta every day. One ounce is about 1 slice of bread, 1 cup of breakfast cereal, or 1/2 cup of cooked rice or pasta. Look to see that grains such as wheat, rice, oats, or corn are referred to as “whole” in the list of ingredients.
- Go lean with protein. Choose lean meats and poultry. Bake it, broil it, or grill it. Vary your protein choices with more fish, beans, peas, nuts, and seeds.

Know the limits on fats, salt, and sugars. Read the Nutrition Facts label on foods. Look for foods low in saturated fats and trans fats. Choose and prepare foods and beverages with little salt (sodium) and/or added sugars (caloric sweeteners).
Find your balance between food and physical activity.
It’s also about physical activity. Regular physical activity is important for your overall health and fitness. It also helps you control body weight by balancing the calories you take in as food with the calories you expend each day.

- Be physically active for at least 30 minutes most days of the week.
- Increasing the intensity or the amount of time that you are physically active can have even greater health benefits and may be needed to control body weight. About 60 minutes a day may be needed to prevent weight gain.
- Children and teenagers should be physically active for 60 minutes every day, or most every day.

Consider this:
If you eat 100 more food calories a day than you burn, you’ll gain about 1 pound in a month. That’s about 10 pounds in a year. The bottom line is that to lose weight, it’s important to reduce calories and increase physical activity.

There is a right number of calories for you to eat each day. This number depends on your age, activity level, and whether you’re trying to gain, maintain, or lose weight.* You could use up the entire amount on a few high-calorie items, but chances are you won’t get the full range of vitamins and nutrients your body needs to be healthy.

Get the most nutrition out of your calories.
Choose the most nutritionally rich foods you can from each food group each day—those packed with vitamins, minerals, fiber, and other nutrients but lower in calories. Pick foods like fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products more often.

Play it safe with food.
Know how to prepare, handle, and store food safely to keep you and your family safe:
- Clean hands, food-contact surfaces, fruits, and vegetables. To avoid spreading bacteria to other foods, meat and poultry should not be washed or rinsed.
- Separate raw, cooked, and ready-to-eat foods while shopping, preparing, or storing.
- Cook meat, poultry, and fish to safe internal temperatures to kill microorganisms.
- Chill perishable foods promptly and thaw foods properly.

About Alcohol.
If you choose to drink alcohol, do so in moderation. Moderate drinking means up to one drink a day for women and up to two drinks for men. Twelve ounces of regular beer, 5 ounces of wine, or 1 1/2 ounces of 80-proof distilled spirits count as a drink for purposes of explaining moderation. Remember that alcoholic beverages have calories but are low in nutritional value.

Generally, anything more than moderate drinking can be harmful to your health. And some people, or people in certain situations, shouldn’t drink at all. If you have questions or concerns, talk to your doctor or health care provider.
These are the basic guidelines for eating a healthy diet and being physically active. For more information about the food groups and nutrition values, or to pick up some new ideas on physical activity, go to www.health.gov/dietaryguidelines/.

* 2,000 calories is the value used as a general reference on the food label. You can calculate your individual number at www.health.gov/dietaryguidelines/.

Source: This information is an excerpt from the Web site http://www.choosemyplate.gov/downloads/myplate/dg2010brochure.pdf.
Script for Scenario

The school nutrition manager is near the school office mailbox with other people in the areas. The manager is putting up a poster.

Person 1
Excuse me, what is that you’re putting on the bulletin board?

Manager (Display the MyPlate poster towards the audience.)
It’s a poster on the new MyPlate. I thought everyone might be interested in seeing it.

Person 2
I don’t understand why information keeps changing about what we should eat for good health.

Person 1
Well, obviously this is the newest information on healthy eating, maybe we can learn more about it.

Person 2
I wish things wouldn’t keep changing. It is so hard to know what to eat.

End scene.
## Identifying Whole Grain Products

<table>
<thead>
<tr>
<th>Words you may see on packages</th>
<th>What they mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>• whole grain [name of grain]</td>
<td>YES – Contains all parts of the grain, so you’re getting all the nutrients of the whole grain.</td>
</tr>
<tr>
<td>• whole wheat</td>
<td></td>
</tr>
<tr>
<td>• whole [other grain]</td>
<td></td>
</tr>
<tr>
<td>• stoneground whole [grain]</td>
<td></td>
</tr>
<tr>
<td>• brown rice</td>
<td></td>
</tr>
<tr>
<td>• oats, oatmeal (including old-fashioned oatmeal, instant oatmeal)</td>
<td></td>
</tr>
<tr>
<td>• wheatberries</td>
<td></td>
</tr>
<tr>
<td>• wheat, or wheat flour</td>
<td>MAYBE – These words are accurate descriptions of the package contents, but because some parts of the grain MAY be missing, you are likely missing the benefits of whole grains. When in doubt, don’t trust these words!</td>
</tr>
<tr>
<td>• semolina</td>
<td></td>
</tr>
<tr>
<td>• durum wheat</td>
<td></td>
</tr>
<tr>
<td>• organic flour</td>
<td></td>
</tr>
<tr>
<td>• stoneground</td>
<td></td>
</tr>
<tr>
<td>• multigrain (may describe several whole grains or several refined grains, or a mix of both)</td>
<td></td>
</tr>
</tbody>
</table>

**NO – These words never describe whole grains.**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Flour</td>
<td>Instantized flour</td>
<td>Hominy grits</td>
</tr>
<tr>
<td>Enriched flour</td>
<td>Phosphated flour</td>
<td>Hominy</td>
</tr>
<tr>
<td>White flour</td>
<td>Self-rising flour</td>
<td>Farina</td>
</tr>
<tr>
<td>Wheat flour</td>
<td>Enriched self-rising flour</td>
<td>Semolina</td>
</tr>
<tr>
<td>All-purpose flour</td>
<td>Bread flour</td>
<td>Degerminated corn meal</td>
</tr>
<tr>
<td>Unbleached flour</td>
<td>Cake flour</td>
<td>Enriched rice</td>
</tr>
<tr>
<td>Bromated flour</td>
<td>Durum flour</td>
<td>Rice flour</td>
</tr>
<tr>
<td>Enriched bromated flour</td>
<td>Corn grits</td>
<td>Couscous</td>
</tr>
<tr>
<td>Bran</td>
<td>Wheat Germ</td>
<td></td>
</tr>
</tbody>
</table>
Identifying Whole Grains Handout

Directions: Identify which of these grains are whole grains. Place a mark in the “Yes, It is a Whole Grain” column.

<table>
<thead>
<tr>
<th>Grains</th>
<th>Yes, It is a Whole Grain</th>
<th>No, It is not a Whole Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaranth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgur (cracked wheat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buckwheat groats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Couscous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degerminated cornmeal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graham flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instant oatmeal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-grain white rice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millet flakes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearled (also called pearl) barley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolled oats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semolina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rye berries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole-grain barley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole wheat flour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White whole wheat flour</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Identifying Whole Grains Handout Answers

<table>
<thead>
<tr>
<th>Grains</th>
<th>Yes, It is a Whole Grain or No, It is not a Whole Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaranth</td>
<td>Yes, amaranth is a whole grain.</td>
</tr>
<tr>
<td>Bulgur (cracked wheat)</td>
<td>Yes, bulgur (cracked wheat) is a whole grain.</td>
</tr>
<tr>
<td>Buckwheat groats</td>
<td>Yes, buckwheat groats are whole grain. They are usually cooked in a manner similar to cooking rice.</td>
</tr>
<tr>
<td>Brown rice</td>
<td>Yes, brown rice is whole grain. In some areas of the country, brown rice should be refrigerated to retard spoilage.</td>
</tr>
<tr>
<td>Couscous</td>
<td>No, couscous is not whole grain unless it is “whole wheat couscous.”</td>
</tr>
<tr>
<td>Degerminated cornmeal</td>
<td>No, only whole cornmeal or whole-grain cornmeal is whole grain. “Degerminated” means that the germ has been removed. Removing the germ from whole cornmeal results in a longer shelf life.</td>
</tr>
<tr>
<td>Graham flour</td>
<td>Yes, graham flour is whole grain. Graham flour is whole wheat flour that is slightly coarser than the regular whole wheat flour.</td>
</tr>
<tr>
<td>Grits</td>
<td>No, grits are not whole grain unless they are made from whole-grain corn. Specialty mills may produce whole-grain grits.</td>
</tr>
<tr>
<td>Instant oatmeal</td>
<td>Yes, whole oats (old fashioned, quick, and instant) are whole grain. However, instant oatmeal is not encouraged because it is highly processed.</td>
</tr>
<tr>
<td>Long-grain white rice</td>
<td>No, white rice is not whole grain. White rice is produced by refining whole-grain rice to remove the germ and bran.</td>
</tr>
<tr>
<td>Millet flakes</td>
<td>Yes, millet flakes is a whole grain.</td>
</tr>
<tr>
<td>Pearled (also called pearl) barley</td>
<td>No, pearled barley is not whole grain. “Pearled” indicates that the bran has been removed.</td>
</tr>
<tr>
<td>Rolled oats</td>
<td>Yes, rolled oats are whole grain. Rolled oats are made by hulling and cleaning whole oats, then steaming and flattening them. Rolled oats are also called old fashioned oats.</td>
</tr>
<tr>
<td>Semolina</td>
<td>No, semolina is not whole grain. Semolina is durum wheat that is ground more coarsely than regular wheat flours.</td>
</tr>
<tr>
<td>Wheat flour</td>
<td>No, wheat flour is not whole grain. It is produced by refining whole wheat to remove the germ and bran.</td>
</tr>
<tr>
<td>Rye berries</td>
<td>Yes, rye berries are whole grain. Various grains with “berries” listed after the grain (wheat, oat, rye, etc.) are whole grains.</td>
</tr>
<tr>
<td>Whole-grain barley</td>
<td>Yes, whole grain barley is whole grain.</td>
</tr>
<tr>
<td>Whole wheat flour</td>
<td>Yes, whole wheat flour is a whole grain.</td>
</tr>
</tbody>
</table>
## Identifying Whole Grains Handout Answers, continued

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>White whole wheat flour</td>
<td>Yes, white whole wheat flour is whole grain. The current wheat market in the U.S. includes red wheat and a small amount of white wheat. The brown color commonly associated with whole wheat products results from the darker bran color of red wheat. White whole wheat products are lighter in color and lack the slightly bitter taste associated with the bran in red wheat. Read the ingredient statement carefully on products labeled as “white wheat,” as some of these products may not contain any white whole wheat flour.</td>
</tr>
</tbody>
</table>
Grain Product Pictures

- Amaranth
- Bulgur (cracked wheat)
- Buckwheat groats
- Brown rice
- Couscous
- Degerminated cornmeal
- Graham flour
- Grits
- Instant Oatmeal
- Long-grain white rice
- Millet flakes
- Pearled (also called pearl) barley
Grain Product Pictures, continued

- Rolled Oats
- Semolina
- Wheat flour
- Rye berries
- Whole-grain barley
- Whole wheat flour
- White whole wheat flour
Vegetable Subgroups Handout

Vegetables are organized into subgroups, based on their nutrient content. The goal of this exercise is to identify the vegetable with the vegetable subgroup.

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans/Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acorn Squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artichokes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asparagus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avocado</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bamboo Shoots</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, Green or Wax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bean Sprouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beet Greens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bell or Chili Peppers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-eyed Peas, Mature, Dry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bok Choy (Cabbage Chinese or Celery)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breadfruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brussels Sprouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butternut Squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cactus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cauliflower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chayote (Mirliton)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cherry Peppers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese Snow Peas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collard Greens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucumbers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>Dark Green</td>
<td>Red/Orange</td>
<td>Beans &amp; Peas (Legumes)</td>
<td>Starchy</td>
<td>Other</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>Dark Green Leafy Lettuce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edamame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggplant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escarole Endive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh cowpeas, field peas, or black-eyed peas (not dry)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbanzo Beans (chickpeas)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grape Leaves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Great Northern Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Cabbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Peas, Dry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hubbard Squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iceberg (Head) Lettuce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jicama (Yam Bean)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kohlrabu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lentils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lima Beans, Canned, Fresh or Frozen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lima Beans, Dry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mung Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mushrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mustard Greens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parsley</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parsnips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Vegetable Subgroups Handout

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans &amp; Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pepperoncini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pigeon Peas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pimentos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinto Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantains</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potato Products, White</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumpkin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Cabbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red/Orange Peppers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romaine Lettuce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rutabagas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salsa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sauerkraut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seaweed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Red Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soybeans, Dry, Mature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Split Peas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swiss Chard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taro (Malanga)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatillos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnip Greens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>Dark Green</td>
<td>Red/Orange</td>
<td>Beans &amp; Peas (Legumes)</td>
<td>Starchy</td>
<td>Other</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>------------</td>
<td>------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>Watercress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Chestnuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yautia (Tannier)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zucchini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from: MyPlate.gov
## Vegetable Subgroups Handout Answers

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans/Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acorn Squash</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artichokes</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asparagus</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avocado</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bamboo Shoots</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, Green or Wax</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bean Sprouts</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beet Greens</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beets</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bell or Chili Peppers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Black Beans</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-eyed Peas, Mature, Dry</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bok Choy (Cabbage Chinese or Celery)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breadfruit</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brussels Sprouts</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butternut Squash</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cactus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Carrot</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Cauliflower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Celery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Chayote (Mirliton)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Cherry Peppers</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicory</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese Snow Peas</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collard Greens</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucumbers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
## Vegetable Subgroups Handout Answers

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans &amp; Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark Green Leafy Lettuce</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edamame</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggplant</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Escarole Endive</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh cowpeas, field peas, or black-eyed peas (not dry)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Garbanzo Beans (chickpeas)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grape Leaves</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Great Northern Beans</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Green Cabbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Onions</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Green Peas, Dry</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hubbard Squash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Iceberg (Head) Lettuce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Jicama (Yam Bean)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Kale</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney Beans</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Kohlrabu</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Lentils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lima Beans, Canned, Fresh or Frozen</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lima Beans, Dry</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mung Beans</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mushrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Mustard Greens</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Okra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Olives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Parsley</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parsnips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
### Vegetable Subgroups Handout Answers

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans &amp; Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pepperoncini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pickles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pigeon Peas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pimentos</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pinto Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Plantains</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Poi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Potato Products, White</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Pumpkin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Radishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Red Cabbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Red/Orange Peppers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Romaine Lettuce</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Rutabagas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Salsa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sauerkraut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Seaweed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Small Red Beans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Soybeans, Dry, Mature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Spinach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Split Peas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Swiss Chard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Taro (Malanga)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tomatillos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tomatoes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tomato Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Turnips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Turnip Greens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
### Vegetable Subgroups Handout Answers

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Dark Green</th>
<th>Red/Orange</th>
<th>Beans &amp; Peas (Legumes)</th>
<th>Starchy</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watercress</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Chestnuts</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>White Beans</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yautia (Tannier)</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Zucchini</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Adapted from: MyPlate.gov
Vegetable Subgroup Pictures

Acorn Squash  Artichokes  Asparagus

Avocado  Bamboo Shoots  Beans, Green or Wax

Bean Sprouts  Beet Greens  Beets

Bell or Chili Peppers  Black Beans  Black-eyed Peas, Mature, Dry
Bok Choy
(Cabbage Chinese or Celery)

Breadfruit

Broccoli

Brussels Sprouts

Butternut Squash

Cactus

Carrot

Cassava

Cauliflower

Celery

Chayote (Mirliton)

Cherry Peppers
Chicory  
Chinese Snow Peas  
Collard Greens  

Corn  
Cucumbers  
Dark Green Leafy Lettuce  

Edamame  
Eggplant  
Escarole Endive  

Fresh cowpeas, field peas, or black-eyed peas (not dry)  
Garbanzo Beans (chickpeas)  
Grape Leaves
Great Northern Beans
Green Cabbage
Green Onions
Green Peas, Dry
Hubbard Squash
Iceberg (Head) Lettuce
Jicama (Yam Bean)
Kale
Kidney Beans
Kohlrabu
Lentils
Lima Beans, Canned, Fresh or Frozen
Vegetable Subgroup Pictures, continued

Lima Beans, Dry  Mung Beans  Mushrooms

Mustard Greens  Navy Beans  Okra

Olives  Onions  Parsley

Parsnips  Pepperoncini  Pickles
Vegetable Subgroup Pictures, continued

Pigeon Peas  Pimentos  Pink Beans

Pinto Beans  Plantains  Poi

Potato Products, White  Pumpkin  Radishes

Red Cabbage  Red/Orange Peppers  Romaine Lettuce
Vegetable Subgroup Pictures, continued

- Rutabagas
- Salsa
- Sauerkraut
- Seaweed
- Small Red Beans
- Soybeans, Dry, Mature
- Spinach
- Split Peas
- Sweet Potatoes
- Swiss Chard
- Taro (Malanga)
- Tomatillos
Vegetable Subgroup Pictures, continued

Tomato Products  
Turnips  
Turnip Greens  
Watercress  
Water Chestnuts  
White Beans  
Yautia (Tannier)  
Zucchini
Protein Equivalent Handout

What Counts as an Ounce Equivalent in the Protein Foods Group? In general, 1 ounce of meat, poultry or fish, ¼ cup cooked beans, 1 egg, 1 tablespoon of peanut butter, or ½ ounce of nuts or seeds can be considered as 1 ounce equivalent from the Protein Foods Group.

The chart lists specific amounts that count as 1 ounce equivalent in the Protein Foods Group towards your daily recommended intake:

<table>
<thead>
<tr>
<th>Amount that counts as 1 ounce equivalent in the Protein Foods Group</th>
<th>Common portions and ounce equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meats</strong></td>
<td></td>
</tr>
<tr>
<td>1 ounce cooked lean beef</td>
<td>1 small steak (eye of round, filet) = 3½ to 4 ounce equivalents</td>
</tr>
<tr>
<td>1 ounce cooked lean pork or ham</td>
<td>1 small lean hamburger = 2 to 3 ounce equivalents</td>
</tr>
<tr>
<td><strong>Poultry</strong></td>
<td></td>
</tr>
<tr>
<td>1 ounce cooked chicken or turkey, without skin</td>
<td>1 small chicken breast half = 3 ounce equivalents</td>
</tr>
<tr>
<td>1 sandwich slice of turkey (4 ½ x 2 ½ x 1/8”)</td>
<td>½ Cornish game hen = 4 ounce equivalents</td>
</tr>
<tr>
<td><strong>Seafood</strong></td>
<td></td>
</tr>
<tr>
<td>1 ounce cooked fish or shell fish</td>
<td>1 can of tuna, drained = 3 to 4 ounce equivalents</td>
</tr>
<tr>
<td><strong>Eggs</strong></td>
<td>1 salmon steak = 4 to 6 ounce equivalents</td>
</tr>
<tr>
<td></td>
<td>1 small trout = 3 ounce equivalents</td>
</tr>
<tr>
<td><strong>Nuts and seeds</strong></td>
<td>1 ounce of nuts or seeds = 2 ounce equivalents</td>
</tr>
<tr>
<td>½ ounce of nuts (12 almonds, 24 pistachios, 7 walnut halves)</td>
<td></td>
</tr>
<tr>
<td>½ ounce of seeds (pumpkin, sunflower or squash seeds, hulled, roasted)</td>
<td></td>
</tr>
<tr>
<td>1 Tablespoon of peanut butter or almond butter</td>
<td></td>
</tr>
<tr>
<td><strong>Beans and peas</strong></td>
<td></td>
</tr>
<tr>
<td>¼ cup of cooked beans (such as black, kidney, pinto, or white beans)</td>
<td>1 cup split pea soup = 2 ounce equivalents</td>
</tr>
<tr>
<td>¼ cup of cooked peas (such as chickpeas, cowpeas, lentils, or split peas)</td>
<td>1 cup lentil soup = 2 ounce equivalents</td>
</tr>
<tr>
<td>¼ cup of baked beans, refried beans</td>
<td>1 cup bean soup = 2 ounce equivalents</td>
</tr>
<tr>
<td>¼ cup (about 2 ounces) of tofu</td>
<td></td>
</tr>
<tr>
<td>1 oz. tempeh, cooked ¼ cup roasted soybeans 1 falafel patty (2 ¼”, 4 oz)</td>
<td>1 soy or bean burger patty = 2 ounce equivalents</td>
</tr>
<tr>
<td>2 Tablespoons hummus</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from ChooseMyPlate.gov
Quick Tips for Understanding a Food Label

For a healthier you, use this tool to make smart food choices quickly and easily. Try the following tips:

• Look at the serving size and how many servings you are actually consuming. If you double the servings you eat, you double the calories and nutrients, including the percent of the daily values (DV).

• Make your calories count. Look at the calories on the label and compare them with what nutrients you are also getting to decide whether the food is worth eating. When one serving of a single food item has over 400 calories per serving, it is high in calories.

• Keep these low: saturated fats, trans fats, cholesterol, and sodium.

• Get enough of these: potassium, fiber, vitamins A and C, calcium, and iron.

• Use the % Daily Value (DV) column when possible: (5% DV or less is low, 20% DV or more is high.) Check servings and calories.

• Don’t sugarcoat it. Since sugars contribute calories with few, if any, nutrients, look for foods and beverages low in added sugars. Read the ingredient list and make sure that added sugars are not one of the first few ingredients. Some names for added sugars (caloric sweeteners) include sucrose, glucose, high fructose corn syrup, corn syrup, maple syrup, and fructose.

• Know your fats. Look for foods low in saturated fats, trans fats, and cholesterol to help reduce the risk of heart disease (5% DV or less is low, 20% DV or more is high). Most of the fats you eat should be polyunsaturated and monounsaturated fats. Keep total fat intake between 20% and 35% of calories.

• Reduce sodium (salt). About 1 teaspoon of sodium (2,300 mg) is the recommended daily limit. Most of the sodium people eat comes from processed foods, not from the saltshaker.
Total carbohydrate includes starch, sugars, and dietary fiber. Some labels list soluble and insoluble fiber. To determine how much complex carbohydrate is in a serving, subtract the amount of fiber and sugars from the total carbohydrate grams. The remainder is starch, a complex carbohydrate.

Check the ingredient label to find out if sugars are natural from milk or fruit or added sugars from corn syrup, dextrose, or other sweeteners. This number includes natural and added sugars in one total.

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving Size</td>
</tr>
<tr>
<td>Servings per Container</td>
</tr>
<tr>
<td>Amount per Serving</td>
</tr>
<tr>
<td>Calories</td>
</tr>
<tr>
<td>Calories from Fat</td>
</tr>
<tr>
<td>% Daily Value*</td>
</tr>
<tr>
<td>Total Fat</td>
</tr>
<tr>
<td>Saturated Fat</td>
</tr>
<tr>
<td>Trans Fat</td>
</tr>
<tr>
<td>Polyunsaturated Fat</td>
</tr>
<tr>
<td>Monounsaturated Fat</td>
</tr>
<tr>
<td>Cholesterol</td>
</tr>
<tr>
<td>Sodium</td>
</tr>
<tr>
<td>Potassium</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
</tr>
<tr>
<td>Dietary Fiber</td>
</tr>
<tr>
<td>Sugars</td>
</tr>
<tr>
<td>Protein</td>
</tr>
<tr>
<td>Vitamin A</td>
</tr>
<tr>
<td>Vitamin C</td>
</tr>
<tr>
<td>Calcium</td>
</tr>
<tr>
<td>Iron</td>
</tr>
</tbody>
</table>

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

<table>
<thead>
<tr>
<th>Calories</th>
<th>2,000</th>
<th>2,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat less than</td>
<td>65g</td>
<td>80g</td>
</tr>
<tr>
<td>Saturated Fat less than</td>
<td>20g</td>
<td>25g</td>
</tr>
<tr>
<td>Cholesterol less than</td>
<td>300mg</td>
<td>300mg</td>
</tr>
<tr>
<td>Sodium less than</td>
<td>2,400mg</td>
<td>2,400mg</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>300g</td>
<td>375g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>25g</td>
<td>30g</td>
</tr>
</tbody>
</table>

Calories per gram:
Fat 9  Carbohydrate 4  Protein 4

INGREDIENTS: The ingredients in the product are listed here. The food contains the most of the first item listed. It has the least of the last item listed.

Manufacturer name and address appear here.
Proposed New Nutrition Facts Label
Handout

The U.S. Food and Drug Administration has proposed to update the Nutrition Facts label for packaged foods to reflect the latest scientific information, including the link between diet and chronic diseases such as obesity and heart disease. The proposed label also would replace out-of-date serving sizes to better align with how much people really eat, and it would feature a fresh design to highlight key parts of the label such as calories and serving sizes.

Some of the changes to the label the FDA proposed would:
• Require information about the amount of “added sugars” in a food product. The 2010 Dietary Guidelines for Americans states that intake of added sugar is too high in the U.S. population and should be reduced. The FDA proposes to include “added sugars” on the label to help consumers know how much sugar has been added to the product.
• Update serving size requirements to reflect the amounts people currently eat. What and how much people eat and drink has changed since the serving sizes were first put in place in 1994. By law, serving sizes must be based on what people actually eat, not on what people “should” be eating. Present calorie and nutrition information for the whole package of certain food products that could be consumed in one sitting.
• Present “dual column” labels to indicate both “per serving” and “per package” calorie and nutrition information for larger packages that could be consumed in one sitting or multiple settings.
• Require the declaration of potassium and vitamin D, nutrients that some in the U.S. population are not getting enough of, which puts them at higher risk for chronic disease. Vitamin D is important for its role in bone health. Potassium is beneficial in lowering blood pressure. Vitamins A and C would no longer be required on the label, though manufacturers could declare them voluntarily.
• Revise the Daily Values for a variety of nutrients such as sodium, dietary fiber and Vitamin D.
• While continuing to require “Total Fat,” “Saturated Fat,” and “Trans Fat” on the label, “Calories from Fat” would be removed because research shows the type of fat is more important than the amount.
• Refresh the format to emphasize certain elements, such as calories, serving sizes and Percent Daily Value, which are important in addressing current public health problems like obesity and heart disease.

Adapted from “FDA proposes updates to Nutrition Facts label on food packages” News Release, by U.S. Food and Drug Administration, Feb. 27, 2014.

More information on the proposed changes can be found at http://www.fda.gov/newsevents/newsroom/pressAnnouncements/ucm387418.htm
Food Label Activity Handout

Answer the following questions for each food label at your table.

Name of product: _______________________________________________________________

1. What is the serving size listed?
   ____________ cup(s)

2. How many calories for a single serving?
   ____________ calories

3. Is the serving size listed a normal portion size? If no, why not?
   __________________________________________________________________________
   __________________________________________________________________________

4. If no, how many calories would be normally consumed?
   ____________ calories

5. Identify the items below as low (5% or less), moderate, or high (20% or more) based on percent of daily value for the serving size listed and for what you would consider a normal serving size.

<table>
<thead>
<tr>
<th></th>
<th>For Serving Size</th>
<th>For Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Listed</td>
<td>Normally Consumed</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trans Fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

National Food Service Management Institute
Other Questions for Consideration

1. Does the label make any special health claims? If yes, what are they?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

2. Would it be considered a healthy choice? Why?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

3. In general, what is your overall impression of how the products present themselves to the consumer?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
School Breakfast, Lunch, and Afterschool Snack Programs and the Summer Food Service Program present unique opportunities to put the 2010 Dietary Guidelines for Americans into action. Put the Guidelines on the serving line with the menu suggestions below. You can use these tips at home, too.

Breakfast is a great meal to encourage whole grain foods and support the dietary tip to “make half your grains whole.” Some options include:

- Serve whole-grain, ready-to-serve, and cooked cereals.
- Offer toast made with 100% whole wheat bread.
- Wrap brown rice, scrambled eggs, cheese, and salsa in whole wheat tortillas.
- Provide whole wheat bagels with flavored low-fat cream cheese.
- Serve egg and cheese breakfast sandwiches on whole-grain English muffins.
- Add whole wheat flour and rolled oats to recipes for baked bread items.

Vary the vegetables offered during lunch. Include different colors, such as dark green and orange, and different types of vegetables, such as legumes and starchy vegetables, several times a week. Try one of the following ideas:

- Create seasonal salad bar choices with a wide variety of deeply colored vegetables.
- Put more dark green in specialty salads by combining fresh spinach or romaine lettuce with traditional iceberg lettuce blends.
- Serve soups made with beans, cubed sweet potatoes or winter squash, and sliced carrots.
- Introduce ethnic foods featuring dried beans, peas, and lentils.
- Assemble Asian rice bowls by layering assorted vegetables and lean meat mixtures over brown rice.
- Make Mexican wraps featuring brown rice and cooked beans/meat, salsa, cheese, and chopped tomato.

The Afterschool Snack Program and the Summer Food Service Program are perfect places to put more fresh fruit into children’s diets. Summer feeding programs can capitalize on the variety of mouth-watering fresh fruits in season during summertime. Creative combinations include:

- Make a fruit pizza with graham crackers, cream cheese, and bite-size, fresh fruit pieces.
- Chunk seasonal melons and serve with pretzel sticks for Make Your Own Fruit Kabobs.
- Layer fresh fruit and berries with yogurt (or use fruit canned in juice, drained, for a mixed fruit cup).
Lesson 3
Macronutrients: The Energy Nutrients
Protein requirements are complicated because the amount we need changes with age.

- Infants require about 10 grams a day.
- Teenage boys need up to 52 grams a day.
- Teenage girls need about 46 grams a day.
- Adult men need about 56 grams a day.
- Adult women need about 46 grams a day.

One important exception is pregnant or lactating women. The recommended intake for them rises to 71 grams of protein a day.

Another way to look at protein requirements is as a percentage of calories. The Institute of Medicine recommends we get at least 10% and no more than 35% of calories from protein.

Most people get enough protein, but some might do well to add a few additional sources.
Simple Sugars:  
As Simple as One, Two, Three, or More

As Simple as One, Two, Three, or More!

Most carbohydrates are plant-based foods. Plants use sunshine and basic elements in the soil in a chemical process (photosynthesis) to make energy in the form of sugars. Plants convert sugars to starches for storage.

One
All carbohydrates, simple and complex, are made of molecules called saccharides (sugars). A single unit is called a monosaccharide, which means one (mono-) sugar unit (saccharide). The three single sugar units are
1) Glucose (the type that circulates through the body in the blood supply),
2) Fructose (fruit sugar), and
3) Galactose (only found in milk).

Two
Most of the simple sugars in foods are two (di-) units joined, or a disaccharide. There are three disaccharides.
1) Glucose + Fructose = Sucrose (known as table sugar),
2) Glucose + Galactose = Lactose (the sugar naturally found in milk), and
3) Glucose + Glucose = Maltose (known as malt sugar).

Three or More
Complex carbohydrates are called polysaccharides. Complex carbohydrates are many (poly-) units linked together. Starches can be hundreds of units joined.

The body breaks down all carbohydrates, simple and complex, into single units. The glucose from milk, table sugar, or starch is all the same. The body changes fructose and galactose into glucose. Since all glucose units are the same, the cells in the body cannot tell what food supplied the glucose.

The body does react to how quickly glucose is absorbed into the blood stream. A simple sugar’s single bond breaks easily; units are absorbed quickly. The many bonds of a starchy food take longer to break apart. Fruit’s fructose and milk’s galactose are changed into glucose and enter the blood stream at a slower rate.

Fruits, vegetables, whole grains, and legumes provide the body with much needed fiber, vitamins, and minerals. Pastries, desserts, candies, and sweetened beverages often lack essential nutrients. The glucose in all foods is identical; the bounty of nutrients – or lack of needed nutrients carbohydrate-rich foods provide is the big difference.
Added Sugars and Food Labels

The sugars listed on food labels are similar to the glucose units in the body. The label lists all sugars, natural and added, in one amount.

Look for sources of sugars and other sweeteners, usually words that end in the letters “ose”, such as sucrose.

The following are common added sugars: Sugar or brown sugar, sucrose, dextrose, fructose, high-fructose corn syrup, corn sweetener, concentrated fruit juices, invert sugar, honey, malt syrup, maltose, and molasses.
Non-Nutritive Sweeteners
(Sugar Substitutes)

Non-nutritive sweeteners are sweet-tasting compounds. They are hundreds of times sweeter than table sugar. Small amounts of these sweeteners replace larger amounts of conventional sweeteners in food products. The result is a sweet taste with few added calories.

Each non-nutritive sweetener is different. For example, some can be used in baking while others lose their sweet taste when exposed to high temperatures.

The use of non-nutritive sweeteners is a personal choice. Non-nutritive sweeteners make it possible to include sweet-tasting foods in calorie-control diets and diabetic eating plans. A lingering after-taste may occur with some sweeteners.

Remember, foods made with non-nutritive sweeteners need to be part of a balanced diet. It is not healthful to have unlimited amounts of a food or beverage just because it is “sugar-free.”

In the United States, non-nutritive sweeteners are approved for use in foods, beverages, and medicines. Information on a few of these is listed below.

Acesulfame K Facts: (Sweet One)
- Use to sweeten
  ✔ beverages ✔ baked and pasteurized foods
  ✔ candies ✔ medicines such as cough drops
- Not digested; it is excreted unchanged
- About 200 times sweeter than sugar
- Does not promote tooth decay

Aspartame Facts: (In most diet drinks)
- Made of two amino acids—aspartic acid and phenylalanine
- Digested and metabolized as aspartic acid, phenylalanine, and a small amount of methanol
- Warning that product contains phenylalanine must be on the food label
- About 200 times sweeter than sugar
- Does not promote tooth decay
- Does not retain sweet taste after high temperatures—not good for baking

Note: Individuals with Phenylketonuria (PKU) should not use aspartame because they are unable to metabolize the amino acid phenylalanine.
Neotame Facts: (Truvia)
- Made of two amino acids—aspartic acid and phenylalanine; due to small amounts used, PKU labeling is not required
- Sweetest of the non-nutritive sweeteners; 7,000 – 13,000 times sweeter than sugar
- Stays sweet at high temperatures; approved for baking and cooking
- Safe for diabetic diets

Saccharin Facts:
- Oldest of the non-nutritive sweeteners
- 300 – 700 time sweeter than sugar
- Safe for diabetic diets
- May reduce the risk of tooth decay
- Heat stable; suitable for baking, cooking, and canning/preserving

Sucralose Facts: (Splenda)
- Made from table sugar (sucrose)
- Not digested or absorbed
- Heat stable
- Used to sweeten
  - ✔ beverages
  - ✔ cereals
  - ✔ baked items
  - ✔ medical foods
  - ✔ candies

Sucralose is the exception to the “ose” rule to find sources of added caloric sweeteners in a product ingredient list. Any grams of sugar listed on the nutrition facts label of products sweetened with sucralose are from other ingredients, not the sucralose.

Other Sweeteners

Sugar Alcohols Facts:
- Neither sugar or alcohol; another form of carbohydrate
- Include sorbitol, mannitol, and maltitol
- Provide calories, but fewer than sugar
- Potential laxative effect in large amounts

Foods with sugar alcohols may use the term “sugar-free” AND must state “not a calorie-free food” on the label. Many food products use sugar alcohols and non-nutritive sweeteners combined. Sugar-free chewing gums are sweetened with sugar alcohols since they do not promote tooth decay.

All artificial sweeteners should be used in moderation. There is controversy as to how safe they are and at what levels they are safe.
Fatty Acids Handout

The word lipid refers to fats and oils. This handout explains fats and oils in the diet and lipids in the body.

Lipids in the diet
Lipids solid at room temperature are called fats. Oils are lipids that are liquid at room temperature. All lipids are concentrated sources of energy, or calories. A gram of fat or oil provides 9 calories; an equal amount of pure protein or carbohydrate provides 4 calories.

Both fats and oils are made up of different fatty acids, similar to how proteins are made up of different amino acids. Fatty acids are divided into two groups: essential and non-essential. If the body cannot make the fatty acid from another source, it is called essential. Non-essential fatty acids can be made from other fatty acids by the body. Two fatty acids, alpha-linoleic acid (ALA) and linoleic acid (LA), are essential fatty acids. Humans must get these fats in the diet. We cannot make these vital fats from other dietary fats.

Every fat and oil is made of more than one type of fatty acid. Fats and oils are grouped by the fatty acid that makes up most of the fatty acids. For example, if the fat contains mostly saturated fatty acids, the fat is then referred to as a saturated fat.

Types of fatty acids
Trans fatty acids (TFAs) are made when hydrogen is added to vegetable oils in a processing plant. The process changes unsaturated oils to partially saturated fats (partially hydrogenated oil). Shortening, stick margarine, and some frying oils are examples of TFAs. Food labels will list partially hydrogenated vegetable oils as an ingredient. Hydrogenation increases the shelf life and flavor stability of food. Snack crackers, chips, cookies, and fried foods are often sources of trans fatty acids.

Saturated fatty acids (SFAs) are solid at room temperature. Animal fats, such as beef fat, lard, and butter are examples of foods with the most SFAs. Some plant oils, such as coconut or palm oil are also sources of SFAs.

Monounsaturated fats (MUFAs) are the primary fatty acids found in olive or canola oils, tree nuts such as walnuts or almonds (and oils made from these nuts), peanuts, and avocados. Diets from the Mediterranean area are rich in MUFAs.

Polyunsaturated fats (PUFAs) are major fatty acids found in corn, soybean, or safflower oil and fish.
Cholesterol in the diet is only found in animal-based foods. Dietary cholesterol can raise blood cholesterol in some people.

For most people, the total amount of fat in the diet and the types of fats change their blood cholesterol levels. Saturated and trans fatty acids increase blood cholesterol levels. Mono- and polyunsaturated fats are linked to lower blood cholesterol levels.

---

**Fatty Acids - All Greek to Me**

Omega is a letter in the Greek alphabet. Some fatty acids are grouped using this letter and a number. The groups are omega-3, omega-6, and omega-9.

**Omega-3 Fatty Acids**

There are three groups of omega-3 fatty acids. ALA (alpha-linoleic acid), DHA (docosahexaenoic acid), and EPA (eicosapentaenoic acid) are all polyunsaturated fatty acids. ALA is found in many plant oils, including canola and flaxseed oil. ALA is an essential fatty acid. The body can change ALA into DHA or EPA, but it is not an efficient process. Most Americans do not eat enough foods rich in omega-3 fatty acids DHA and EPA. The *Dietary Guidelines for Americans* recommend fish more often to increase these healthy fats. Fish and other seafood are natural sources of EPA and DHA. Experts say to check with your doctor before beginning to take fish oil tablets for more DHA and EPA in the diet. For the general public, foods rich in omega-3 fatty acids are preferred.

**Omega-6 Fatty Acids**

Omega-6 fatty acids are also polyunsaturated fatty acids. The essential fatty acid linoleic acid is an omega-6 fatty acid. The North American food supply provides plenty of omega-6 fatty acids from vegetable oils such as corn, safflower, and soybean.

Omega-3 and omega-6 fatty acids play many roles in the body. Together they support a healthy brain and balance important body processes such as blood clotting and inflammation. Inflammation is the body’s response to injury and helps with healing. It is an important body process. How each fatty acid contributes to health continues to be studied.

**Omega-9 Fatty Acids**

Omega-9 fatty acids are a group of monounsaturated fatty acids. Our bodies make these fatty acids from others, so they are not considered essential. Oleic acid, the major fatty acid in olive oil, is an omega-9 fatty acid. Diets with more fat from olive oil are found in the Mediterranean areas of the world. This eating style is being studied for health benefits.

Balance between these types of fatty acids is important. All are needed for good health. Check your food choices and be sure to include foods that provide all three types of omega fatty acids. The *Dietary Guidelines for Americans* encourage more mono- and polyunsaturated fats from plant oils and fish to replace saturated and trans fats in the diet.
Lipids in the body
The lipids, or fats, in our diet influence the amount and type of lipids in our body. In the blood, lipids are mixed with proteins. This mixture makes it easier to move fats around the body to where they are needed. These mixtures of lipids and protein are called lipoproteins (lipo for lipid or fat mixed with protein). Blood tests are used to find out how much of each kind of lipoprotein is in the body.

Every cell in our body needs a small amount of fat. The body needs a small amount of fat for daily needs. The fatty acids our body cannot make from other fats (also called essential fatty acids) can be supplied by a total of two to four tablespoons of oils each day.

Cholesterol is a fat-like compound in the blood that is made up of different types of lipoproteins. The body also makes cholesterol. The liver makes more cholesterol each day than most people eat in their diet. Cholesterol is an important part of hormones.

HDL stands for high-density lipoprotein, also known as the ‘good’ type of blood cholesterol. HDL’s main job is to pick up cholesterol from around the body and help remove it. High levels of HDL help protect against heart disease.

LDL stands for low-density lipoprotein, also known as the ‘bad’ type of blood cholesterol. LDL’s job is to take cholesterol made in the liver and from other sources to different places in the body. We need some LDL to be healthy but high levels of LDL are a risk factor for heart disease.
Carbon Chains in Fatty Acids

Saturated Fatty Acid
A carbon can have a bond – or a place to connect – in four different places. These places can look like the directions on a compass: north, south, east, and west. In a fatty acid, a carbon usually connects to another carbon at the sides (the east and west directions) and a hydrogen on the top and bottom (north and south direction). No double carbon bonds are present in the saturated fatty acid. Every carbon is “saturated” with four bonds.

Monounsaturated Fatty Acid
When a pair of carbons in a chain connect to each other twice at the side rather than have a hydrogen bond at the top of each carbon, this is called a monounsaturated fatty acid. Unsaturated means it does not link to all the hydrogen possible. Mono means one. It is unsaturated in only one place along the carbon chain. The link between the carbons is called a double bond.

Polyunsaturated Fatty Acid
When the carbon chain has two or more of these double bonds, it is called a polyunsaturated fatty acid. Again, it does not have all the hydrogen bonds possible. Poly means many or more than one. It is unsaturated in more than one place along the carbon chain.
Trans Fatty Acid

A *trans* fatty acid is an unsaturated fatty acid that contains a *trans* double bond between carbon atoms, kinking the molecules. The hydrogen atoms are on opposite sides of the chain.

![Chemical structure of a trans fatty acid](image)
Total Fat

If a food has less than 0.5 grams of *trans* fat per serving, the label will show zero (0) grams. A food with 0.25 grams per serving would provide 1 gram in four servings of the food. Examples might be snack crackers, cookies, or other foods made with partially hydrogenated vegetable oil.

Check the ingredient label for the words *partially hydrogenated vegetable oil* to know if a food might have *trans* fatty acids.

Labels must list Total and Saturated Fat in Grams and % Daily Value.

DGA suggest 10% or less of Saturated Fat. This is the requirement in the School Nutrition Program.

*Trans* Fat is listed in grams.

Listing amounts of Mono- and Polyunsaturated Fats is optional.

Total fat minus Saturated and *Trans* Fats will give an estimate combined MUFAs and PUFAs.

Food labels do not give a % Daily Value for *trans* fat – no value has been set by FDA. The DGAs suggest as low as possible. School Nutrition Programs require 0 grams.

Animal products are the only foods that contain cholesterol.
The Lowdown on Low-Fat Recipes

It is helpful to know the role fat plays in a recipe before changing the recipe to be lower in fat. Low-fat baking is an art form all its own. The tips below are a great place to start.

The rule of thumb for any recipe makeover is to test after every change. Have fun updating your favorite recipes.

Common ways to reduce fat in baked good recipes

• Try the recipe with up to one third less fat without a replacement – it may work fine!
• Use unsweetened applesauce or other fruit purees to replace half or more of the fat in a recipe.
• Use plain low-fat or fat-free yogurt to replace half or more of the fat in the recipe.

Note: Replace fat with a measure for measure amount such as ½-cup applesauce for ½-cup margarine.

Many foods have a low-fat option that can be used in recipes. Examples include
• Fat-free milk for whole or 2% milk
• Evaporated skim milk for regular evaporated milk
• Low-fat plain yogurt or fat-free sour cream for regular sour cream

Flavor
Flavor is a major role for fats in recipes. Butter flavors baked goods. Butter can be reduced in a recipe to decrease saturated fat. A butter/margarine blend or butter/oil blend are two options to keep flavor when reducing the amount of fat or using a different type of fat.

Recipes that mix butter with sugar have a unique caramel flavor. Increase the amount of flavorings to make up for less butter in a recipe.

Texture
Fat helps keep baked goods tender. Fat coats the flour pieces. This coating keeps the protein in flour from linking to other proteins. When fat is reduced, baked items can be tough. Replacing some of the fat with unsweetened applesauce is one way to help keep baked goods tender. Here is another tip to try: Use whole wheat pastry flour. Pastry flour, also called cake flour, has less protein than all-purpose flour, so it will produce a more tender product. Whole wheat pastry flour adds whole grain goodness, too.
Egg yolks are a source of fat and cholesterol. They also help mix fat and protein. When a recipe calls for two eggs, try this idea: Use one whole egg and two egg whites for the second egg. Using all egg whites can make baked goods tough.

**Moisture**

Fat helps baked goods hold moisture. Oils have more moisture than butter or shortening, so flour may need to be increased slightly. Applesauce also adds moisture, so be sure to adjust recipes where it replaces some of the fat.

When butter or shortening is mixed with granulated sugar, it traps moisture and air in the batter. Reducing the fat or sugar will produce a different product.

Pureed prunes can make a product dry; adjust liquid in the recipe as needed. Oats are also likely to absorb liquid, so recipes with oats or oat bran may need an adjustment of the liquid ingredients. Testing is the key to finding the right mix.

**Technique**

Lower fat baking requires special attention to how the recipe is measured and mixed.

Weighing flour is the most accurate way to measure flour. Another method that works well is the spoon-and-sweep method. Stored flour can settle and compact. Stir flour to add air. Then spoon the free flowing flour into the measuring cup and sweep the surface level with a knife.

Never over mix a lower fat batter. Stirring too much helps the proteins bind and makes the product tough. Spoon and stir in flour rather than use a mixer. The mixer will often over mix the product and add to toughness.

**More recipe ideas**

- The fat in cheese helps carry the flavor. Use a flavorful cheese, such as sharp cheddar, with a lower fat cheese, such as part-skim mozzarella. Try one part full-flavored cheese to two parts reduced-fat cheese.
- Nuts and seeds add flavor and healthy fats. Add a small amount to a lower fat recipe for more flavor and crunch.
- Remove extra fat from cooked ground beef. Put the cooked meat in a colander. Drain well. Use in spaghetti sauce, tacos, and chili recipes.
- Low-fat margarines will not work well in recipes to replace other fats. These spreads contain large amounts of water.
- Pay attention to portions. A sliver of a rich dessert is another way to reduce fat. Enjoy just a taste or two.
Lessons 3

Cafeteria Connection
Limits on Lipids

The Healthy, Hunger-Free Kids Act of 2010 calls on schools to reflect the Dietary Guidelines for Americans in meal programs. Meals need to provide students with minimum amounts of nutrients needed for growth and health. Nutrients of concern, such as dietary fat, are balanced for good health. Over the menu week, limits are

- Less than 10% of total calories from saturated fat.
- Zero trans fat

When it comes to heart health, the type and amount of fat we eat makes a big difference. Many Americans eat too much saturated fat and cholesterol, which increase unhealthy blood lipids (low-density lipoproteins, or “LDL cholesterol”). Most of the saturated fat in our diet comes from cheese and other higher fat dairy products, beef, and baked goods like cakes, cookies, and doughnuts. Foods higher in saturated fat usually contain more cholesterol, too.

Look for the amount of “saturated fat”, “trans fat,” and “cholesterol” per serving listed on the Nutrition Facts label. Choose foods that have the least amount of all three. A manufacturer can claim a food as “low-cholesterol” if the product contains 20 mg of cholesterol or less and 2 g or less of saturated fat per serving.

School nutrition staff have many tools to meet these goals. Well planned menus with tested recipes are a major tool.

Tested recipes, also called standardized recipes, provide all steps to make a menu item. These recipes list the

- Food items to use
- Specific amounts of each item
- Steps to follow
- Total number of servings (yield)
- Serving size (portion)

Here are some quality measures to follow:

- Select the right food item. The wrong ingredient can change the recipe including the fat content.
- Measure items carefully. An extra cup of oil, shredded cheese, or meat crumbles adds extra fat and calories to a recipe. The extra amount also adds to the program food costs.
- Use the right scoop, ladle, or portion size. Make sure the recipe as served matches the recipe as planned. A pan cut into larger sizes, for example 20 instead of 25 portions, increases fat and calories per serving by 20%. It also serves 20% fewer students!
- Help students enjoy smaller amounts of condiments and salad dressings. Use portion-packs or other means for portion control. Look for fat-free items that can be served.
• Look for new generation foods that are lower in fat. Check out the new *Recipes for Healthy Kids Cookbook* on the USDA Team Nutrition website.

• Offer fat-free (skim) or low-fat (1%) milk and yogurt. They’re rich in protein, calcium, and other nutrients and lower in saturated fat and cholesterol.

• Try low-fat cottage cheese, part-skim mozzarella, ricotta, and other low-fat or reduced-fat cheeses.

• Omit butter and cream in sauces or as a seasoning for vegetables. Try herbs and spices to add more flavor without the fat.

• Choose lean cuts of meats with minimal visible fat. Trim all outside fat before cooking and remove the skin on poultry.

• Prepare fish baked, broiled, or grilled rather than breaded and fried.

• Avoid using too many processed meats including sausage, bologna, salami, and hot dogs — even those with “reduced fat” labels — they may still be high in calories, saturated fat, and cholesterol. Serve grilled, skinless chicken breast instead.

• Limit certain bakery products like doughnuts, pies, cakes, cookies, and crackers, which may contain saturated fat and trans fat.

These daily work habits will assure meals served meet the goals.
# Fast Facts About Energy Nutrients

<table>
<thead>
<tr>
<th>Nutrient Information</th>
<th>Protein</th>
<th>Carbohydrate</th>
<th>Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>4 Calories per Gram</td>
<td>4 Calories per Gram</td>
<td>9 Calories per Gram</td>
</tr>
<tr>
<td>Major Functions</td>
<td>Builds and maintains muscles, tissues, and blood cells.</td>
<td>Provides energy and is the body’s preferred energy source.</td>
<td>Transports fat-soluble vitamins.</td>
</tr>
<tr>
<td></td>
<td>Is an essential part of enzymes and hormones that regulate body functions.</td>
<td>Supplies brain and central nervous system with energy.</td>
<td>Provides structure to cell membranes.</td>
</tr>
<tr>
<td></td>
<td>Enhances immune function.</td>
<td>Provides dietary fiber. Dietary fiber and starch contribute to satiety.</td>
<td>Cushions body organs.</td>
</tr>
<tr>
<td></td>
<td>Can be a source of energy, but is not the body’s preferred energy source.</td>
<td></td>
<td>Contributes to normal nerve and brain development in young children.</td>
</tr>
<tr>
<td></td>
<td>Contributes to satiety, the feeling of fullness that signals the body to stop eating.</td>
<td></td>
<td>Is an essential part of hormones that regulate body functions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provides a concentrated energy source.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provides stored energy for the body.</td>
</tr>
<tr>
<td>Nutrient Information</td>
<td>Protein</td>
<td>Carbohydrate</td>
<td>Fat</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------</td>
<td>--------------</td>
<td>-----</td>
</tr>
<tr>
<td>Types</td>
<td>Complete proteins are found in animal foods. Incomplete proteins are found in plant foods. See <em>Did You Know?</em> section for more information.</td>
<td>Simple sugars are found naturally in fruits and milk and are added to foods during processing or preparation. Starch is a digestible complex carbohydrate found in grains and vegetables. Dietary fiber is an indigestible complex carbohydrate found in plant foods.</td>
<td>Monounsaturated fats (MUFEs) are found in canola oil, olive oil, and most nuts. Polyunsaturated fats (PUFAs) are found in vegetable oils. Saturated fats (SFAs) are found primarily in animal foods and tropical oils, such as palm oil. Trans fats are found primarily in partially hydrogenated vegetable oils.</td>
</tr>
<tr>
<td>Food Sources</td>
<td>Complete (Animal): Meats, fish, poultry, milk, yogurt, cheese, and eggs Incomplete (Plant): Dried peas and beans, legumes, nuts, and seeds</td>
<td>Simple sugars: Milk, fruits, honey, refined white or brown sugars, high-fructose corn syrup, and other processed sugars Starch: Whole grains, vegetables, dried peas and beans Dietary Fiber: Fruits, vegetables, whole grains, dried peas and beans, nuts, and seeds</td>
<td>Liquid sources of fat: Vegetable oils, fish, nuts, and seeds Solid sources of fat: margarine, butter, shortening, lard, meat, poultry, and dairy products Many grains and vegetables have fat added during preparation or processing</td>
</tr>
<tr>
<td>Can the Body Store This Nutrient?</td>
<td>The body uses protein to build tissues and muscles. Protein is not stored, but tissues and muscles can be broken down if protein is not supplied in the diet. Protein is needed regularly in the diet. Excess dietary protein is converted to fat for storage.</td>
<td>The body can store a limited amount of carbohydrate in the muscles and the liver. Excess dietary carbohydrate is converted to fat for storage.</td>
<td>The body stores excess calories from all sources—protein, carbohydrate, and fat—as body fat.</td>
</tr>
<tr>
<td>Nutrient Information</td>
<td>Protein</td>
<td>Carbohydrate</td>
<td>Fat</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------</td>
<td>--------------</td>
<td>-----</td>
</tr>
<tr>
<td><strong>Did You Know?</strong></td>
<td>Protein is made of amino acids. Essential amino acids are ones the body cannot make and must have in the diet. Protein from animal foods supplies all the essential amino acids and is considered complete protein. Protein from plant sources lacks one or more of the essential amino acids and is considered incomplete protein. However, a mixed diet of plant and animal protein sources supplies all the amino acids needed for good health. Food combinations such as beans and rice, macaroni and cheese, or peanut butter and whole wheat bread are tasty ways to get all the amino acids in the diet.</td>
<td>All carbohydrates are made of different combinations of sugar units. Simple sugars, such as table sugar (sucrose) or the sugar in milk (lactose), have two sugar units linked together. The body can easily break the bond between the two sugar units. Simple sugars digest quickly and provide a quick energy source. The complex carbohydrate starch is made of many sugar units linked together. The body needs more time to break the bonds between the chains of sugar units. Starch digests more slowly and provides a sustained energy source. Carbohydrate (simple and complex) starts to digest in the mouth. The bacteria in the mouth eat the sugars and produce acid which contributes to tooth decay. Brushing teeth after meals and snacks helps prevent cavities.</td>
<td>Fat is made of fatty acids. Essential fatty acids are ones the body cannot make and must have in the diet. Fat is needed in small amounts for good health. Too much of any type of fat can contribute to weight gain and heart conditions. Fatty acids are liquid at room temperature. Food sources of these fats are recommended. Polyunsaturated fatty acids: Moderate intake of these fats is recommended. Saturated fatty acids and trans fatty acids are solid at room temperature. The <em>Dietary Guidelines</em> encourage lower intake of these types of fats. These can be hidden in processed foods, so remember to read the label. The <em>Dietary Guidelines</em> recommend limiting added fats; limiting solid fats; choosing lean, low-fat, and fat-free foods; and shifting sources of dietary fat to fish, nuts, and olive or canola oils.</td>
</tr>
</tbody>
</table>
NUTRITION 101:
A Taste of Food and Fitness

Lesson 4
Micronutrients: Vitamins and Minerals
Vitamins and Minerals From A to Zinc

Vitamins are grouped by the type of liquid in which they would dissolve: fat or water.

*The fat-soluble vitamins are A, D, E, and K.*

**Vitamin A** is vital to healthy skin, healthy eyes, and night vision. Food sources include milk, liver, egg yolks, and dark-green and orange vegetables. Taking too much vitamin A from supplements can damage health and cause a yellowing appearance.

**Vitamin D** is also called the sunshine vitamin. The body can produce vitamin D when skin is exposed to sunlight. Vitamin D helps the body absorb calcium and contributes to strong bones and teeth. Food sources include fortified milk, fatty fish, liver, and eggs. Taking too much vitamin D from supplements can damage health.

**Vitamin E** is essential to red blood cell production. It also helps keep cells healthy. Food sources include vegetable oils, wheat germ, whole grains, and green leafy vegetables, sesame seeds, and almonds. Vitamin E is not a miracle cure for everything.

**Vitamin K** is necessary for normal blood clotting. Newborn babies receive a vitamin K shot at birth to prevent hemorrhages. Vitamin K also plays a minor role in strong bones. Food sources include dark-green, leafy vegetables, milk, vegetable oils, cabbage, and cauliflower.

*The water-soluble vitamins include the B vitamins and vitamin C. Five of the more common members of the B vitamin group are listed below, followed by vitamin C.*

**Thiamin** helps the body use energy and keeps the nervous system healthy. Food sources include whole and enriched grains, pork, eggs, yeast, dried beans, and green leafy vegetables.

**Riboflavin** is essential to converting carbohydrate, fat, and protein to energy. The digestive tract, mucous membranes, and skin need riboflavin to be healthy. Food sources include milk, cheese, whole and enriched grains, organ meats, eggs, and green leafy vegetables.

**Niacin** is another B vitamin that helps release energy from foods. Niacin keeps the nervous system healthy and promotes healthy skin and digestive tract. Food sources include pork, beef, whole or enriched grains, peanuts, and liver.

**Folic Acid** helps make new body and blood cells. This B vitamin helps prevent birth defects and may reduce heart disease. Food sources include green leafy vegetables, citrus fruits, strawberries, dried beans, enriched grains, fortified cereals, liver, and wheat germ. Folacin and folate are other names for folic acid.
Vitamin B-12 aids in nerve function and helps the body make new cells. Food sources include animal foods such as meat, poultry, fish, eggs, milk, and fortified soy milk. It is a nutrient of concern in strict vegetarian diets. Taking too much vitamin B-12 from supplements can damage health.

Vitamin C is part of collagen, helps immunity, and keeps gums and blood vessels healthy. Food sources include citrus fruits, tomatoes, peppers, potatoes, cantaloupe, strawberries, broccoli, and cabbage.

Minerals
Calcium is best known for building and maintaining strong bones and teeth. Calcium plays a role in muscle contraction, nerve impulses, blood clotting, and normal blood pressure. Food sources include milk, cheese, yogurt, dried beans, broccoli, fish with soft bones, and dark-green, leafy vegetables.

Magnesium contributes to strong teeth and aids in the metabolism of potassium, calcium, and Vitamin D. Food sources include whole grains, black beans, black-eyed peas, avocados, and soy milk.

Potassium regulates heart beats, is required for normal muscle function, and promotes normal blood pressure. Food sources include fresh fruits and vegetables such as bananas, potatoes, and lima beans.

Iron prevents anemia, carries oxygen in red blood cells, boosts the immune system, and is considered the body’s gold. Food sources include lean red meats, organ meats, dark poultry meats, whole and enriched grains, legumes, and green leafy vegetables.

Zinc plays a critical role in immune function, wound healing, growth, and blood clotting. Food sources include lean meat, eggs, seafood, nuts, and whole grains.
Fluid Facts About Water

Do you know which nutrient your body needs most? It is water. Water is so critical that without fluids, a person would not survive. A person can live without food for a few weeks, but can live without water for only a few days.

Water is part of every cell in the body. Water plays a role in nearly every body process. Water works to promote health by

- Transporting nutrients to the cells
- Removing waste products from the cells and the body
- Lubricating joints
- Cooling the body through perspiration
- Moistening the eyes, mouth, and nasal passages
- Aiding in digestion as part of saliva and digestive juices

Exactly how much water or fluids a person needs each day varies. Physical activities and hot weather or conditions increase fluid needs. Thirst, the desire to drink fluids, is your body’s cue that it needs more fluids. Obey your thirst and enjoy fluids with and between meals.

Fluid studies indicate water and other beverages provide most of the fluids in the diet. Foods provide about 20% of daily fluids. A combination of foods and beverages can meet a person’s needs. Meet your fluid needs with

- water
- milk
- soups
- fruits
- vegetables
- juice
- other beverages

Health experts encourage plain water and unsweetened beverages for a variety of reasons. Tooth decay can occur with a frequent intake of regular soft drinks, sports drinks, fruit punches, and other sugary drinks. Sugar sweetened beverages are a source of extra calories and may contribute to weight gain. Coffee or tea provide fluids; just be sure daily fluid choices are varied. The guides of balance, variety, and moderation apply to both daily food and fluid choices.

It is common to see water bottles carried by young and old alike. Here is a tip to keep your drink refreshing and safe. Use a durable water bottle designed to be re-used. Thoroughly clean reusable water bottles with a bottlebrush and hot, soapy water between uses. Wash bottles with large openings in a dishwasher if made of dishwasher-safe materials. Refilling a water bottle without a thorough washing creates a perfect place for bacteria to grow. Keep your water fresh and clean.
Super Foods – The Next Frontier

Nature packs fruits and vegetables with vitamins, minerals, and Phytonutrients. Phytonutrients are plant-based (phyto) nutrients. They are not vitamins or minerals. Scientists are just starting to uncover all of the powerful, health-promoting compounds in plant foods.

Phytonutrients color produce vividly. Produce with similar hues may promote health in similar ways. How do phytonutrients work? Science does not have all the answers today. There is strong promise of added health benefits of vegetables and fruits beyond the known actions of vitamins and minerals. That is reason enough to say super-size the next colorful, delicious salad.

**Red plant foods are rich in lycopene.** Early studies show lycopene helps fight cancer and perhaps heart disease. Tomato products are particularly rich sources of lycopene. The cooking process increases the activity of lycopene.

**Red/purple plants produce anthocyanins.** These compounds may prevent age-related memory loss. Studies of strawberries and blueberries show promise. This same active agent is in cranberries and is linked to reduced incidence of urinary tract infections.

**White/green foods such as onions, leeks, garlic, and chives contain allicin.** Studies of this phytonutrient focus on a strong immune system. Though more studies are needed, early results show this compound may stop cancer in its very early stages.

**Orange and yellow/orange foods are bursting with beta-carotene and other carotenoids.** Many studies show lower risk of cancer with higher intakes of carotenoids. Different types of carotenoids are present in plant foods. Scientists think that the power may be in partnerships of the various carotenoids working together.

**Yellow/green plants like spinach are rich in lutein.** An age-related eye disease may be less common among people with high lutein levels. Egg yolks are the rare animal food rich in lutein.

**Green vegetables, including broccoli and Brussels sprouts, have a unique sulfur-based compound that helps the liver combat cancer.** Cauliflower has the same compound. It is grouped with the green vegetables. These foods also help cells fight the spread of cancer.

New research shows the fat from a little drizzle of oil or sprinkle of cheese or nuts helps the body absorb and use these superstar, health promoters from plants. It is just one more way foods work together to satisfy taste and health. Enhance the flavors with a squeeze of lemon and enjoy the flavors.
Pumping iron—dietary sources of iron, that is—is a powerful tool to help students achieve their best in school.

Do you know how poor iron intake can influence a student’s ability to learn? The potential side effects of iron deficiency, also known as anemia, include

- Increased tiredness
- Shortened attention span
- Decreased capacity to work
- Less resistance to illness
- Impaired ability to think and problem-solve

One or more of these symptoms can add up to a student who is unable to learn and perform at her best.

Low iron status is a common health concern for teenage girls. Many girls do not eat enough of the richest sources of iron, including red meat, liver, whole and enriched grains, and fortified cereals. Vegetarian students are also at higher risk for poor iron intake. Well-planned vegetarian meals can provide nutrient needs, including iron. However, some youth become vegetarian without learning to plan nutritious meals. They often skip iron-rich dried beans, peas, lentils, and whole grains, nor do they eat vitamin C-rich foods that increase the absorption of iron from plant foods.

Schools meals are planned to provide a balance of vitamins and minerals. These nutrients do more than support growth and development. Vitamins and minerals enhance the immune system, which helps students miss less school due to illness. Good nutrition also provides the brain with critical nutrients needed for learning. Encouraging fruit and vegetable intake is one way to increase vitamins and minerals in the diet.

New tools are available to help school nutrition professionals encourage students to eat plenty of fruits and vegetables daily. *Fruits and Vegetables Galore: Helping Kids Eat More* is a must-have guide. It features tips for purchasing and preparing colorful combinations of produce. Dozens of ideas for promoting fruits and vegetables in school meals are provided. Flavorful recipes and marketing ideas burst from the pages.
# Web Sites of Organizations: Fruit and Vegetables Group

These organizations offer nutrition information and recipes featuring a variety of fruits and vegetables. Look for consumer and school food service information.

<table>
<thead>
<tr>
<th>Fruits</th>
<th>National Watermelon Promotion Board</th>
<th>Mushroom Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apricot Producers of California</td>
<td><a href="http://www.watermelon.org">www.watermelon.org</a></td>
<td><a href="http://www.mushroomcouncil.com">www.mushroomcouncil.com</a></td>
</tr>
<tr>
<td>California Cling Peach Board</td>
<td>New England Apple Association</td>
<td>National Onion Association</td>
</tr>
<tr>
<td>California Dried Plum Board</td>
<td>Northwest Cherry Growers</td>
<td>National Potato Promotion Board</td>
</tr>
<tr>
<td>California Kiwifruit Commission</td>
<td>Oregon Raspberry and Blackberry Commission</td>
<td>Produce for Better Health Foundation</td>
</tr>
<tr>
<td>California Raisin Marketing Board</td>
<td>U.S. Apple Association</td>
<td>Produce Marketing Association</td>
</tr>
<tr>
<td><a href="http://www.raisins.org">www.raisins.org</a></td>
<td><a href="http://www.usapple.org">www.usapple.org</a></td>
<td><a href="http://www.pma.com">www.pma.com</a></td>
</tr>
<tr>
<td>California Table Grape Commission</td>
<td>U.S. Highbush Blueberry Council</td>
<td>United Fresh Produce Association</td>
</tr>
<tr>
<td>Cherry Marketing Institute</td>
<td>Washington State Apple Commission</td>
<td></td>
</tr>
<tr>
<td><a href="http://www.choosecherries.com">www.choosecherries.com</a></td>
<td><a href="http://www.bestapples.com">www.bestapples.com</a></td>
<td></td>
</tr>
<tr>
<td>Florida Department of Citrus</td>
<td>Florida Tomato Committee</td>
<td></td>
</tr>
<tr>
<td><a href="http://www.floridajuice.com">www.floridajuice.com</a></td>
<td><a href="http://www.floridatomatoes.org">www.floridatomatoes.org</a></td>
<td></td>
</tr>
<tr>
<td>International Banana Association</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.fruitandveggieguru.com">www.fruitandveggieguru.com</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>California Tomato Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mushroom Council</td>
<td></td>
</tr>
<tr>
<td><a href="http://www.mushroomcouncil.com">www.mushroomcouncil.com</a></td>
<td></td>
</tr>
</tbody>
</table>
NUTRITION 101:
A Taste of Food and Fitness

Lesson 5
Special Diets
Vegetarian Diets

The term “vegetarian diet” can mean different things to different people. For some it may mean not eating meat. For others it can mean eating only certain plant foods. For many others, it means something in between. The number of Americans choosing a vegetarian diet, at least part of the time, continues to grow.

The most common vegetarian diets in the United States are
- Lacto-ovo
- Lacto
- Ovo
- Vegan

**Lacto-Ovo Vegetarians** eat plant-based foods plus milk/dairy products (lacto) and eggs (ovo). Lacto-ovo vegetarian diets are the least likely to have nutrient deficiencies because a few animal foods are included.

**Lacto Vegetarians** eat plant-based foods and milk/dairy products.

**Ovo Vegetarians** eat plant-based foods and eggs.

**Vegan Vegetarians** do not eat any animal-based foods. Strict vegans also avoid honey and foods derived from animal products such as gelatin. Vegan diets need careful attention to sources of complete proteins.

**Less Common Varieties**

**Flexatarian** is another new term. This person may eat chicken, fish, or even red meat on occasion, but generally follows a plant-based diet.

**Fruitarians** eat fruits, nuts, and seeds. They usually avoid grains, legumes, and vegetables that are not the fruit of the plant. This subtype of the vegan diet can lead to nutrient deficiencies.

**Macrobiotic diets** are plant-based, though some people include fish. Most macrobiotic diets feature grains, vegetables, and legumes with fewer fruits, nuts, and seeds.

**Raw food diets** are often plant-based. Uncooked and unprocessed foods are the basis of a raw food diet. Some people include raw meat or fish and raw milk.

**Semi-vegetarians** may follow a self-styled eating plan rather than a defined vegetarian diet. These people may describe themselves as vegetarian yet eat fish (**pescatarian**) or poultry.
The key to a healthy vegetarian diet – like any diet – is to enjoy a variety of foods. The more restrictive your diet is, the greater risk of missing essential nutrients. With proper planning you can live a very healthy life following a plant-based eating pattern.
## Nutrients of Concern in Plant-Based Diets Handout

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>Animal proteins are complete because they provide all essential amino acids. Plant proteins are incomplete because different plant foods lack different amino acids. Vegan diets that include whole grains, legumes, nuts, and seeds can provide both adequate protein quantity and quality. Complementary proteins do not need to be eaten at every meal and snack, but rather throughout the day. In order for protein needs to be met, vegetarian diets must provide adequate calories.</td>
</tr>
<tr>
<td>Iron</td>
<td>Meat provides heme iron which is highly absorbed and used by the body. Plant foods provide non-heme iron. The absorption of non-heme iron is increased when it is eaten with a food rich in vitamin C, for example spinach salad with orange segments. Iron-fortified cereals and grains, legumes, and leafy greens are good sources of iron in plant-based diets.</td>
</tr>
<tr>
<td>Calcium</td>
<td>Plant-based diets that include enough milk and milk products will supply calcium needs. Vegetarians who do not include milk or milk products need to choose legumes, leafy green vegetables, and calcium-fortified milk replacements such as calcium-fortified soy milk.</td>
</tr>
<tr>
<td>Vitamin B-12</td>
<td>Only animal foods provide vitamin B-12. Strict vegan vegetarians need to include vitamin B-12 fortified foods or supplements in order to have adequate intake. Plant-based diets are rich in the B vitamin folacin, which can mask the symptoms of B-12 deficiency. Doctors order blood tests to measure B-12 status.</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Vegetarians who do not have enough sun exposure may need a vitamin D supplement or vitamin D-fortified foods.</td>
</tr>
<tr>
<td>Omega-3 Fatty Acids</td>
<td>The omega-3 fatty acids in fish and seafood, DHA and EPA, are often low in the diets of strict vegans. Microalgae can be a source of DHA for vegetarians. The body can change DHA into EPA.</td>
</tr>
<tr>
<td>Zinc</td>
<td>Plant-based foods are low in zinc. The high phytate content of plant-based diets may further reduce absorption rates. Unrefined grains and legumes have phytate. Phytate binds with zinc.</td>
</tr>
<tr>
<td>Iodine</td>
<td>Plant foods are also low in iodine. Unless iodized salt is used, plant-based diets can be low in this nutrient.</td>
</tr>
</tbody>
</table>
When vegetarian diets gained popularity in the 1960s and 1970s, the advice was to make sure complete proteins were eaten at each meal.

Proteins are complete when they provide all the essential amino acids. Amino acids are the building blocks of protein. Animal proteins are complete.

If an essential amino acid is lacking, the protein is incomplete. Most plant-based proteins are low in one of the essential amino acids. Plant-based proteins are limited by that amino acid and are considered incomplete. For example, if the only source of protein in a diet was corn, a lysine deficiency would occur.

Grains, nuts, and seeds are limited by the amino acid lysine; vegetables and legumes are limited by the amino acid methionine.

The chart below shows how different plant foods with incomplete proteins can combine to form complete proteins. The solid line in between two foods means most foods in the two groups can combine to provide complete protein. The dotted line between grains and nuts and seeds means some but not all foods in the two groups will combine to provide complete protein. When two foods combine to create a complete protein, the foods are called complementary.

Nutrition science has advanced since the early 1960s. Today’s advice for vegetarians is to eat a variety of plant-based protein sources throughout the day for complete proteins. A healthy vegetarian diet does not need to have complete proteins at each meal. However, complementary proteins are delicious and make menu planning easier. Vegetarian diets can provide adequate protein quality as well as quantity.
Protein Predictions Activity

MyPlate suggests amounts of each food group to eat at various calorie levels. The MyPlate graphic below lists amounts of each food group to eat for a balanced diet with 2000 calories. There are many choices in each food group. Below are three different sets of food choices: a mixed diet, lacto-ovo vegetarian, and vegan eating plan. The three food groups that provide the most protein are listed.

<table>
<thead>
<tr>
<th>Grains (6 ounces)</th>
<th>Mixed Diet</th>
<th>Lacto Ovo</th>
<th>Vegan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup oatmeal</td>
<td>1 cup oatmeal</td>
<td>1 cup oatmeal</td>
<td></td>
</tr>
<tr>
<td>2 sl white bread</td>
<td>2 sl WW bread</td>
<td>2 sl WW bread</td>
<td></td>
</tr>
<tr>
<td>1 cup white rice</td>
<td>1 cup white rice</td>
<td>1 cup brown rice</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dairy (3 cups or equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Diet</td>
</tr>
<tr>
<td>3 cups milk</td>
</tr>
<tr>
<td>2 oz chicken</td>
</tr>
<tr>
<td>3 oz salmon</td>
</tr>
<tr>
<td>Lacto Ovo</td>
</tr>
<tr>
<td>3 cups milk</td>
</tr>
<tr>
<td>1 egg</td>
</tr>
<tr>
<td>2 T peanut butter</td>
</tr>
<tr>
<td>Protein Foods (5 1/2 ounces)</td>
</tr>
<tr>
<td>Mixed Diet</td>
</tr>
<tr>
<td>1 T sunflower seeds</td>
</tr>
</tbody>
</table>

Fruits do not provide protein and the protein content of vegetables varies by choice. On the ranking line, predict each diet’s protein content by circling the H for highest, M for middle, and L for lowest. If you think any diet does not provide enough protein to meet basic needs (the recommended amount for any age group), circle the name of the diet (at the top).

Predicted Protein Ranking of Diet

<table>
<thead>
<tr>
<th>Predicted Protein Ranking of Diet</th>
<th>H</th>
<th>M</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Diet</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Lacto Ovo</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Vegan</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
</tbody>
</table>

Actual Grams of Protein Provided

<table>
<thead>
<tr>
<th>Actual Grams of Protein Provided</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacto Ovo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegan</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Actual Protein Ranking of Diet

<table>
<thead>
<tr>
<th>Actual Protein Ranking of Diet</th>
<th>H</th>
<th>M</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Diet</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Lacto Ovo</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Vegan</td>
<td>H</td>
<td>M</td>
<td>L</td>
</tr>
</tbody>
</table>
### Health and Nutrition Benefits in Plant-Based Diets

<table>
<thead>
<tr>
<th>Nutrient/Diet Component</th>
<th>Health Connection</th>
</tr>
</thead>
</table>
| Dietary Fiber           | • Higher in vegetarians diets; dietary fiber is associated with healthy body weight.  
                          | • Lower body weight is linked to lower risk of chronic diseases. |
| Soluble Fiber           | • Helps lower blood cholesterol  
                          | • Helps keep blood sugar levels stable |
| Insoluble Fiber         | • Speeds food through the digestive tract, which may lower risk of some cancers |
| Soy Protein             | • Helps reduce blood cholesterol  
                          | • Linked to lower risk of Type 2 diabetes |
| Fruits and Vegetables   | • Rich in minerals such as potassium  
                          | • Help reduce blood pressure  
                          | • Rich in antioxidants and phytonutrients  
                          | • Help reduce heart disease risk  
                          | • Fight cancer cells in early stages |
| Legumes                 | • Help lower blood cholesterol  
                          | • Help keep blood sugar levels stable |
| Whole Grains            | • Rich in vitamins, minerals, and dietary fiber  
                          | • Linked to lower risk of Type 2 diabetes |
| Nuts                    | • Help lower blood cholesterol |
| Mono-and Polyunsaturated Fatty Acids | • Help lower blood cholesterol, help reduce inflammation |

How well a plant-based diet meets nutrition needs depends on some important factors. One is the type of plant-based diet eaten. Another is if the plant-based diet is well-planned and balanced.

Like any other pattern of eating consuming a variety of foods helps to ensure that all nutrients needs are met.
Diabetes Scenarios
Handout

Script for Scenario 1

Scenario 1: Bobby

Bobby comes through the serving line and starts drinking his milk before he gets his tray. He does this every day for a week. You have watched Bobby over the years as he has advanced to 4th, 5th, and 6th grades and have not noticed this behavior in the past. You asked Bobby if he is thirsty. He replies yes, and that he has also has been so tired lately that he cannot go out and play with his friends. You ask him if he has mentioned his increase thirst and tiredness to anyone. He says no.

Script for Scenario 2

Scenario 2: Elizabeth

Elizabeth is coming through the serving line and has a very red face. She has sweat pouring down her face. You know physical activity is later in the day. She drops her tray before she gets to the table to eat with her friends. She is devastated. When you go to comfort her she says she is shaking and does not know why.
NUTRITION 101:
A Taste of Food and Fitness

Lesson 6
Putting it All Together
Time Saving Tips

• Jump start the cooking process. Batch cook and freeze portions of ingredients that take longer to cook, such as brown rice, or entrees, such as vegetable lasagna, for use later in the week.

• Packaging small portions of stews or soups can also be frozen or refrigerated for use at a later time.

• Prepack balanced meals from leftovers and store in microwave dishes in your freezer or refrigerator.

• Keep cut up vegetables in the refrigerator for that late afternoon snack or a quick snack on the go.

• Keep easy to eat, washed, whole fruit in the refrigerator for a quick sweet snack, such as grapes or kiwi (it can be eaten like an apple, skin and all).

• Purchase a variety of plain frozen vegetables to add color and nutrients to a quick meal or canned soup. These are high in nutrition and low in sodium and fat.

• Add your own tips:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
Eating Better on a Budget

- Use a shopping list to limit purchases to items needed. Avoid impulse purchases by following a menu plan and not shopping while hungry.

- Concentrate shopping in the perimeter areas of the store, where fresh produce, milk, fish, poultry, meats, and breads are stocked. Limit processed food purchases.

- Compare unit prices and purchase the best value between foods. The biggest container is not always the best price.

- Purchase fruits and vegetables in season.

- Split the cost and the quantity of foods from bulk food outlets or warehouse stores with a friend or family member. Large packs are only a good deal if you can use the item before it spoils.

- Use coupons found in your local newspaper, in the store, and on the internet. Check pricing before purchasing to make sure it is a good deal.

- Watch for store sales on foods you use regularly. Purchase fruits, vegetables, and proteins that are on the weekly special.
Enhancing Flavors

Put natural taste interactions to work for you. Use the tips below to enhance the tastes you prefer in foods.

Squeeze fresh lemon juice on mixed salad greens that have been drizzled with olive oil. The sour in the juice suppresses the bitter in salad greens and reds, like radicchio. A dash of salt will further suppress the bitter flavor.

Try a squeeze of lemon or lime juice just before serving on nearly any cooked vegetable with a bitter taste such as broccoli or Brussels sprouts. Once again, the sour of the fresh juice suppresses the bitter flavors.

Lightly sprinkle a strong-flavored cheese such as Parmesan or Romano on cooked vegetables. The salt from the cheese will suppress the bitter in the vegetable. A strong-flavored cheese imparts a big flavor with a little bit of cheese. Mix a strong-flavored cheese with a low-fat cheese such as shredded mozzarella for a generous sprinkle that is lower in calories. Remember though, these cheeses add sodium.

Top a sour fruit such as grapefruit segments with a sweet fruit such as finely diced, sweetened dried cranberries. The sweet from the cranberries will touch the tongue first and decrease the sour of the grapefruit. The color combination is pretty, too.

Remember that pepper on the top will suppress the taste of salt. When watching your salt and sodium intake, make sure the use of pepper does not increase your salt shakings. Red pepper does not suppress the perception of salt.

Use temperature for maximum taste advantage. A grapefruit half that is broiled or warmed slightly in a microwave will taste sweeter than cold grapefruit.

Enhance the natural sweetness of foods by using spices such as cinnamon, cardamom, ginger, or nutmeg. These spices, along with vanilla, are sweet enhancing flavors. Experiment with these spices in vegetable dishes. The taste sensation may surprise you.

Experience the flavor that fresh herbs can bring to salads and cooked dishes. Most cookbooks have a chart of common herb and food combinations. Read the labels of fresh herbs in the store for more ideas.
Create your own savory foods by using slow-cooking methods that naturally create wonderful flavor profiles. Caramelized onions, homemade chicken stock, and slow roasted foods have time to develop savory flavors. Compare the tastes of homemade applesauce, which has been slowly simmered, to the taste of canned. The taste may bring you back to homemade more often.

Toasting is a simple way to enhance the flavors of nuts and seeds. Toasting brings out the flavor of nuts. Add a tablespoon or two of toasted nuts or seeds to the top of yogurt and fruit, a colorful vegetable salad, barley and brown rice pilaf, or cooked oatmeal several times a week.
Portion Distortion

Commonly purchased, served, and consumed portions of food have changed over the past few decades. The portions have grown and the calories have increased.

- 12 Oz. can vs. 20 Oz. can: 110 more calories
- 3” Dia. vs. 6” Dia.: 210 more calories
- 1.5” vs. 3.5”: 220 more calories
- 1.5 Oz. vs. 4 Oz.: 290 more calories
- 1.5 Cups vs. 3.5 Cups: 400 more calories
- Regular Slice vs. Super Slice: 350 more calories
- Regular vs. Double: 257 more calories
Be a Portion Pro

Portion size is getting out of control these days. Here are serving sizes typically dished up today compared with the size you should be eating. How do your meals size up?

<table>
<thead>
<tr>
<th>Typical Size</th>
<th>Ideal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato</td>
<td>Computer Mouse</td>
</tr>
<tr>
<td>Apple or piece of fruit</td>
<td>Tennis Ball</td>
</tr>
<tr>
<td>Meat</td>
<td>Deck Cards</td>
</tr>
<tr>
<td>Cheese</td>
<td>Dice</td>
</tr>
<tr>
<td>Bagel or Doughnut</td>
<td>Hockey Puck</td>
</tr>
</tbody>
</table>
Tips for Eating Healthy When Eating out

- As a beverage choice, ask for water or order fat-free or low-fat milk, unsweetened tea, or other drinks without added sugars.
- Ask for whole-wheat bread for sandwiches.
- In a restaurant, start your meal with a salad packed with veggies, to help control hunger and feel satisfied sooner.
- Ask for salad dressing to be served on the side. Then use only as much as you want.
- Choose main dishes that include vegetables, such as stir fries, kebobs, or pasta with a tomato sauce.
- Order steamed, grilled, or broiled dishes instead of those that are fried or sautéed.
- Choose a small" or "medium" portion. This includes main dishes, side dishes, and beverages.
- Order an item from the menu instead heading for the "all-you-can-eat" buffet.
- If main portions at a restaurant are larger than you want, try one of these strategies to keep from overeating:
  - Order an appetizer-sized portion or a side dish instead of an entrée.
  - Share a main dish with a friend.
  - If you can chill the extra food right away, take leftovers home in a "doggy bag."
  - When your food is delivered, set aside or pack half of it to go immediately.
  - Resign from the "clean your plate club" - when you've eaten enough, leave the rest.
- To keep your meal moderate in calories, fat, and sugars:
  - Ask for salad dressing to be served "on the side" so you can add only as much as you want.
  - Order foods that do not have creamy sauces or gravies
  - Add little or no butter to your food.
  - Choose fruits for dessert most often.
- On long commutes or shopping trips, pack some fresh fruit, cut-up vegetables, low-fat string cheese sticks, or a handful of unsalted nuts to help you avoid stopping for sweet or fatty snacks.

http://www.choosemyplate.gov/healthy-eating-tips/tips-for-eating-out.html
Personal Discovery Assessment

Use the form below to record daily food intake. Put a check mark under the food group to track servings. If desired, record calories and total each day. Track amount of physical activity; try to have at least 30 minutes most days of the week. It can take 3-4 weeks to change a habit. Keep a daily record to help you chart your progress.

<table>
<thead>
<tr>
<th>Time/Meal</th>
<th>Food</th>
<th>Amount</th>
<th>Calories</th>
<th>Grains</th>
<th>Vegetables</th>
<th>Fruits</th>
<th>Dairy</th>
<th>Protein</th>
<th>Oils</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>Bran Muffin</td>
<td>2 ounces</td>
<td>220</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mindful Eating

For 3 days, keep track of the food and meals you eat. Fill out the form below, recording the day and time, foods eaten, anyone who shared the meal, emotions or feelings, and any other activities done while eating, such as watching TV.

Rate your taste awareness of the foods using this scale: 1 = did not notice flavors to 10 = paid complete attention to each flavor tasted.

Rate your level of hunger before and after eating using this scale: 1 = famished to 10 = uncomfortably overstuffed.

Review the sample below for an example of how to complete the form.

<table>
<thead>
<tr>
<th>Day/Time</th>
<th>Food</th>
<th>With Whom</th>
<th>Where</th>
<th>Eating and Doing</th>
<th>Feeling Emotions</th>
<th>Taste Awareness</th>
<th>Hunger Level Before Food</th>
<th>Hunger Level After Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon. 6:30 am</td>
<td>Oatmeal with milk Blueberries Coffee</td>
<td>Husband</td>
<td>Kitchen</td>
<td>Bar Scanning newspaper</td>
<td>Feeling rushed</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

How often did you

• Eat while doing another activity? _______
• Eat not noticing the food flavors? _______
• Eat fully noticing the food flavors? _______
• Eat when very hungry? _______

Did you learn anything new about yourself by doing this activity? No______ Yes______
healthy eating for an active lifestyle

For youth and adults engaging in physical activity and sports, healthy eating is essential for optimizing performance. Combining good nutrition with physical activity can lead to a healthier lifestyle.

1 maximize with nutrient-packed foods
Give your body the nutrients it needs by eating a variety of nutrient-packed food, including whole grains, lean protein, fruits and vegetables, and low-fat or fat-free dairy. Eat less food high in solid fats, added sugars, and sodium (salt).

2 energize with grains
Your body's quickest energy source comes from foods such as bread, pasta, oatmeal, cereals, and tortillas. Be sure to make at least half of your grain food choices whole-grain foods like whole-wheat bread or pasta and brown rice.

3 power up with protein
Protein is essential for building and repairing muscle. Choose lean or low-fat cuts of beef or pork, and skinless chicken or turkey. Get your protein from seafood twice a week. Quality protein sources come from plant-based foods, too.

4 mix it up with plant protein foods
Variety is great! Choose beans and peas (kidney, pinto, black, or white beans; split peas; chickpeas; hummus), soy products (tofu, tempeh, veggie burgers), and unsalted nuts and seeds.

5 vary your fruits and vegetables
Get the nutrients your body needs by eating a variety of colors, in various ways. Try blue, red, or black berries; red and yellow peppers; and dark greens like spinach and kale. Choose fresh, frozen, low-sodium canned, dried, or 100 percent juice options.

6 don't forget dairy
Foods like fat-free and low-fat milk, cheese, yogurt, and fortified soy beverages (soy milk) help to build and maintain strong bones needed for everyday activities.

7 balance your meals
Use MyPlate as a reminder to include all food groups each day. Learn more at www.ChooseMyPlate.gov.

8 drink water
Stay hydrated by drinking water instead of sugary drinks. Keep a reusable water bottle with you to always have water on hand.

9 know how much to eat
Get personalized nutrition information based on your age, gender, height, weight, current physical activity level, and other factors. Use SuperTracker to determine your calorie needs, plan a diet that's right for you, and track progress toward your goals. Lean more at www.SuperTracker.usda.gov.

10 reach your goals
Earn Presidential recognition for reaching your healthy eating and physical activity goals. Log on to www.presidentschallenge.org to sign up for the Presidential Active Lifestyle Award (PALA+).

Ten Tips for Evaluating Nutrition News

1. Is a quick fix promised? Be wary of any information that promises a quick fix to a problem. Chances are it does not have sound science behind it.

2. Are dire warnings given about a food? Rarely does a single food or product cure or cause an illness. Groups with official sounding names may have a political or economic agenda. Check out the credibility of groups or individuals making dire warnings.

3. Does it sound too good to be true? If so, the claims probably are. Many factors determine good health. Family history, long-term food and activity habits, and other factors are still unknown.

4. Does the report give simple findings from a complex study? Most people would be amazed to see the difference between the research and the media reports. Media outlets want short sound bites of information. Researchers usually write with a tone of caution. They limit their findings or call for more research. Headline writers frequently do not see the scientific reports. Their job is to get headlines noticed. Read further.

5. Is a single study used for new advice? Good science requires more than one study to find the same results. After several studies support a finding, new recommendations may be issued. Be cautious of a single study that appears to turn nutrition science on its ear.

6. Do credible health organizations agree? When questionable information is publicized, leading health organizations will issue a response. They may state concerns with a study’s findings or recommendations. Continue to follow a story in the days after a report. Check with leading health groups. There may be more to the story.

7. Is a list of good and bad foods issued? Be skeptical of lists of foods to eat and foods to avoid totally, especially when there seems to be neither rhyme nor reason to the lists. An example might be advice to eat green peppers but avoid red peppers. Be very cautious of advice to exclude entire food groups, such as grains or meat. Excluding entire food groups can lead to nutrient deficiencies.

8. Is a product being sold? If a new product is promoted as a cure-all to a problem, be cautious. The people behind the information have profit motivation. Be skeptical about new diet books for the same reason. Look at the credentials of the person associated with the product or the book. Is the person a medical doctor or a doctor of literature? Anyone can call himself or herself a nutritionist. A Registered Dietitian has completed a college degree in nutrition science, has passed a national exam, and has a professional code of ethics.
9. How well was the study conducted? It can be difficult for consumers to determine if a study is valid. Testimonials, and/or one person’s story, are not considered solid science. In a testimonial, someone says, “I did this and this happened.” The two events may not be cause and effect. They may be coincidence. Good science is peer reviewed and repeated by other scientists.

10. Does the study take results from one group and apply it to others? A study of one group of individuals cannot be applied to another group in the population. The differences between children and adults, women and men, and between subgroups in the population require separate studies. Very big differences exist between animals and people. New areas of research are often studied in animals first. Animal research may show a promising new approach for further study. The results of animal research cannot be directly applied to people.

http://www.eatright.org/Media/content.aspx?id=6442451145&terms=2011-2012+media+guide
The Internet is a great resource of information. Remember, anyone can post any information on the Web. Not every piece of information about nutrition on the Web is supported by science. Be careful about the Web sources you trust for food and nutrition information. A flashy site with persuasive claims may not stand up to the test of science.

Here are some trustworthy sources for food, nutrition, and health information. If you are not sure about the information you find at a Web site, investigate more. Visit these sites and see how the information compares. Telephone or write to a group if you prefer. Check out new information with another source. Decide if the latest nutrition news is trustworthy or too good to be true.

**Organizations**

- **Academy of Nutrition and Dietetics**
  120 South Riverside Plaza, Suite 2000
  Chicago, IL 60606
  www.eatright.org

- **International Food Information Council Foundation**
  1100 Connecticut Ave. NW, Suite 430
  Washington, DC 20036
  www.foodinsight.org

- **National Council Against Health Fraud**
  119 Foster Street
  Peabody, MA 01960
  www.ncahf.org

- **School Nutrition Association**
  700 South Washington Street, Suite 300
  Alexandria, VA 22314
  www.schoolnutrition.org

**Government Agencies**

- **Food and Drug Administration**
  Office of Consumer Affairs and Information
  5600 Fisher Lane, Room 16-85
  Rockville, MD 20857
  www.fda.gov
  and FDA Consumer online
  www.fda.gov/consumerupdates/default.htm

- **Food and Nutrition Information Center**
  National Agricultural Library, Room 304
  U.S. Department of Agriculture
  10301 Baltimore Avenue
  Beltsville, MD 20705

- **USDA Consumer Information Center**
  Pueblo, CO 81009
  www.pueblo.gsa.gov

- **USDA Food and Nutrition Service**
  3101 Park Center Drive
  Alexandria, VA 22302
  www.fns.usda.gov/nutritionlink/
  Check the links to Team Nutrition, Eat Smart. Play Hard.
  Healthy School Meals Resource, and Consumer Information

- **National Food Service Management Institute**
  6 Jeanette Phillips Drive
  University, MS 38677
  Help Desk 800-321-3054
  www.nfsmi.org
  Online courses, resources, videos, and research for the child nutrition professional free of charge.
Pre/Post Quiz

1. Those with a family history of a disease, such as diabetes, may reduce their risk of developing the disease if they
   a. Live a healthful lifestyle with balanced food and activity choices
   b. Continue their current activity level since developing diabetes is inevitable
   c. Adhere to a strict dietary restriction of all carbohydrate foods
   d. Limit the amount of calories consumed

2. The MyPlate graphic
   a. Supports the messages from the *Dietary Guidelines for Americans 2010*
   b. Only includes green leafy vegetables
   c. Shows a simple timeline for a nutrition plan
   d. Does not fit into a healthy lifestyle plan

3. A food label is required to list ingredients
   a. In alphabetical order
   b. In order of most to lease quantity in the food product
   c. If not commonly known
   d. Only if the manufacturer wants to share the product recipe

4. Food sources of simple sugars include
   a. Apples
   b. Soft drinks, candies, and desserts
   c. Milk and yogurt
   d. All of the above

5. Iron is an important nutrient because
   a. Iron is needed to prevent night blindness
   b. All American children are iron deficient
   c. Iron carries oxygen to various parts of the body
   d. Iron status determines bone density

6. The best sources of Vitamin A are
   a. Milk and dark green/orange fruits and vegetables
   b. Whole grains
   c. Dried beans, peas, and lentils
   d. Bananas, onions, and garlic
7. Most Americans
   a. Get plenty of exercise
   b. Need larger portions of meat in their diets
   c. Can improve health through regular, enjoyable physical activities
   d. Get enough calcium every day for strong bones

8. School meals contribute to the health and school achievement of students by
   a. Providing a balance of protein, carbohydrate, and fat for sustained energy with great taste
   b. Providing only low-fat foods
   c. Providing nutrition education activities to all students
   d. Providing only those foods that are familiar to students

9. Nutrition information on the Internet
   a. Is the most reliable source of scientific information available today
   b. Should be viewed carefully for accuracy because anyone can create a website
   c. Is screened for accuracy before it is placed on the web to assure its accuracy
   d. Is posted by reliable scientists or nutrition professionals so you do not have to worry if it is accurate

10. The Dietary Guidelines encourage Americans
    a. To eat half their foods each day from grain sources
    b. To limit fat, sodium, and fiber intake
    c. To increase intakes of whole grains, fruits, vegetables, and low-fat milk
    d. To drink fruit juice frequently

11. The fiber from fruits, vegetables, and whole grains may reduce the risk of developing
    a. Osteoporosis
    b. Macular degenerative disease
    c. Heart disease and type 2 diabetes
    d. Osteoarthritis and lung cancer

12. Dietary Guidelines for Americans are
    a. Based on the needs of healthy individuals
    b. Revised every ten years based on current research
    c. Intended for Americans ages 2 years and older, including those at increased risk of chronic disease
    d. Required to use the same serving sizes for each of the food groups

13. A food label is required to list natural and added sugars separately.
    a. True
    b. False
14. Eating too much sugar will cause high blood pressure and diabetes
   a. True  
   b. False

15. Oils are
   a. Solid at room temperature  
   b. Sources of healthy fats (mono- and polyunsaturated fatty acids)  
   c. Provide only non-essential fatty acids  
   d. Made of only one type of fatty acid called polymonic acid

16. *Trans* fatty acids
   a. Are a type of healthy fat to be encouraged in the diet  
   b. Decrease the risk of heart disease  
   c. Are often man-made from vegetable oils processed to hold more hydrogen  
   d. Are a type of essential fatty acid

17. Vitamin C is needed in the body for all of these needs except
   a. Promote healthy immune system  
   b. Form collagen, part of healthy bones and ligaments  
   c. Prevent goiter  
   d. Increase absorption of non-heme iron

18. Time, price, convenience, and taste are factors that influence food choices.
   a. True  
   b. False

19. Taste preferences
   a. Are based in both genetics and experience and can be changed over time  
   b. Are determined by genetics and cannot be changed  
   c. Are solely learned behaviors  
   d. Are set by 24 months and do not vary

20. The natural flavor in foods can be enhanced by all of the following except
   a. Preparation techniques such as toasting seeds or nuts  
   b. Slow cooking  
   c. Serving tart foods cold  
   d. Using lemon juice on foods with bitter flavor such as salad greens or Brussels sprouts

21. Portion sizes
   a. Do not matter as long as a food is low in fat  
   b. Have become larger for many foods over the last 20 years  
   c. Are regulated in restaurants to meet a national standard  
   d. Are not used in school meal programs
22. Fluid needs
   a. Can be met with water, beverages, and foods
   b. Are not a concern in nutrition
   c. Are the same for all people
   d. Can only be met with water
1. Those with a family history of a disease, such as diabetes, may reduce their risk of developing the disease if they
   a. Live a healthful lifestyle with balanced food and activity choices
   b. Continue their current activity level since developing diabetes is inevitable
   c. Adhere to a strict dietary restriction of all carbohydrate foods
   d. Limit the amount of calories consumed

2. The MyPlate graphic
   a. Supports the messages from the *Dietary Guidelines for Americans 2010*
   b. Only includes green leafy vegetables
   c. Shows a simple timeline for a nutrition plan
   d. Does not fit into a healthy lifestyle plan

3. A food label is required to list ingredients
   a. In alphabetical order
   b. In order of most to lease quantity in the food product
   c. If not commonly known
   d. Only if the manufacturer wants to share the product recipe

4. Food sources of simple sugars include
   a. Apples
   b. Soft drinks, candies, and desserts
   c. Milk and yogurt
   d. All of the above

5. Iron is an important nutrient because
   a. Iron is needed to prevent night blindness
   b. All American children are iron deficient
   c. Iron carries oxygen to various parts of the body
   d. Iron status determines bone density

6. The best sources of Vitamin A are
   a. Milk and dark green/orange fruits and vegetables
   b. Whole grains
   c. Dried beans, peas, and lentils
   d. Bananas, onions, and garlic
7. Most Americans
   a. Get plenty of exercise
   b. Need larger portions of meat in their diets
   c. Can improve health through regular, enjoyable physical activities
   d. Get enough calcium every day for strong bones

8. School meals contribute to the health and school achievement of students by
   a. Providing a balance of protein, carbohydrate, and fat for sustained energy with great
taste
   b. Providing only low-fat foods
   c. Providing nutrition education activities to all students
   d. Providing only those foods that are familiar to students

9. Nutrition information on the Internet
   a. Is the most reliable source of scientific information available today
   b. Should be viewed carefully for accuracy because anyone can create a website
   c. Is screened for accuracy before it is placed on the web to assure its accuracy
   d. Is posted by reliable scientists or nutrition professionals so you do not have to worry if
it is accurate

10. The Dietary Guidelines encourage Americans
    a. To eat half their foods each day from grain sources
    b. To limit fat, sodium, and fiber intake
    c. To increase intakes of whole grains, fruits, vegetables, and low-fat milk
    d. To drink fruit juice frequently

11. The fiber from fruits, vegetables, and whole grains may reduce the risk of developing
    a. Osteoporosis
    b. Macular degenerative disease
    c. Heart disease and type 2 diabetes
    d. Osteoarthritis and lung cancer

12. Dietary Guidelines for Americans are
    a. Based on the needs of healthy individuals
    b. Revised every ten years based on current research
    c. Intended for Americans ages 2 years and older, including those at increased risk of
chronic disease
    d. Required to use the same serving sizes for each of the food groups

13. A food label is required to list natural and added sugars separately.
    a. True
    b. False
14. Eating too much sugar will cause high blood pressure and diabetes
   a. True
   b. False

15. Oils are
   a. Solid at room temperature
   b. Sources of healthy fats (mono- and polyunsaturated fatty acids)
   c. Provide only non-essential fatty acids
   d. Made of only one type of fatty acid called polymonic acid

16. \textit{Trans} fatty acids
   a. Are a type of healthy fat to be encouraged in the diet
   b. Decrease the risk of heart disease
   c. Are often man-made from vegetable oils processed to hold more hydrogen
   d. Are a type of essential fatty acid

17. Vitamin C is needed in the body for all of these needs except
   a. Promote healthy immune system
   b. Form collagen, part of healthy bones and ligaments
   c. Prevent goiter
   d. Increase absorption of non-heme iron

18. Time, price, convenience, and taste are factors that influence food choices.
   a. True
   b. False

19. Taste preferences
   a. Are based in both genetics and experience and can be changed over time
   b. Are determine by genetics and cannot be changed
   c. Are solely learned behaviors
   d. Are set by 24 months and do not vary

20. The natural flavor in foods can be enhanced by all of the following except
   a. Preparation techniques such as toasting seeds or nuts
   b. Slow cooking
   c. Serving tart foods cold
   d. Using lemon juice on foods with bitter flavor such as salad greens or Brussels sprouts

21. Portion sizes
   a. Do not matter as long as a food is low in fat
   b. Have become larger for many foods over the last 20 years
   c. Are regulated in restaurants to meet a national standard
   d. Are not used in school meal programs
22. Fluid needs
   a. Can be met with water, beverages, and foods
   b. Are not a concern in nutrition
   c. Are the same for all people
   d. Can only be met with water
1. Those with a family history of a disease, such as diabetes, may reduce their risk of developing the disease if they
   a. Live a healthful lifestyle with balanced food and activity choices
   b. Continue their current activity level since developing diabetes is inevitable
   c. Adhere to a strict dietary restriction of all carbohydrate foods
   d. Limit the amount of calories consumed

2. The MyPlate graphic
   a. Supports the messages from the *Dietary Guidelines for Americans 2010*
   b. Only includes green leafy vegetables
   c. Shows a simple timeline for a nutrition plan
   d. Does not fit into a healthy lifestyle plan

3. A food label is required to list ingredients
   a. In alphabetical order
   b. In order of most to lease quantity in the food product
   c. If not commonly known
   d. Only if the manufacturer wants to share the product recipe

4. Food sources of simple sugars include
   a. Apples
   b. Soft drinks, candies, and desserts
   c. Milk and yogurt
   d. All of the above

5. Iron is an important nutrient because
   a. Iron is needed to prevent night blindness
   b. All American children are iron deficient
   c. Iron carries oxygen to various parts of the body
   d. Iron status determines bone density

6. The best sources of Vitamin A are
   a. Milk and dark green/orange fruits and vegetables
   b. Whole grains
   c. Dried beans, peas, and lentils
   d. Bananas, onions, and garlic
7. Most Americans
   a. Get plenty of exercise
   b. Need larger portions of meat in their diets
   c. Can improve health through regular, enjoyable physical activities
   d. Get enough calcium every day for strong bones

8. School meals contribute to the health and school achievement of students by
   a. Providing a balance of protein, carbohydrate, and fat for sustained energy with great taste
   b. Providing only low-fat foods
   c. Providing nutrition education activities to all students
   d. Providing only those foods that are familiar to students

9. Nutrition information on the Internet
   a. Is the most reliable source of scientific information available today
   b. Should be viewed carefully for accuracy because anyone can create a website
   c. Is screened for accuracy before it is placed on the web to assure its accuracy
   d. Is posted by reliable scientists or nutrition professionals so you do not have to worry if it is accurate

10. The *Dietary Guidelines* encourage Americans
    a. To eat half their foods each day from grain sources
    b. To limit fat, sodium, and fiber intake
    c. To increase intakes of whole grains, fruits, vegetables, and low-fat milk
    d. To drink fruit juice frequently

11. The fiber from fruits, vegetables, and whole grains may reduce the risk of developing
    a. Osteoporosis
    b. Macular degenerative disease
    c. Heart disease and type 2 diabetes
    d. Osteoarthritis and lung cancer

12. *Dietary Guidelines for Americans* are
    a. Based on the needs of healthy individuals
    b. Revised every ten years based on current research
    c. Intended for Americans ages 2 years and older, including those at increased risk of chronic disease
    d. Required to use the same serving sizes for each of the food groups

13. A food label is required to list natural and added sugars separately.
    a. True
    b. False
14. Eating too much sugar will cause high blood pressure and diabetes  
   a. True  
   b. False

15. Oils are  
   a. Solid at room temperature  
   b. Sources of healthy fats (mono- and polyunsaturated fatty acids)  
   c. Provide only non-essential fatty acids  
   d. Made of only one type of fatty acid called polymeric acid

16. Trans fatty acids  
   a. Are a type of healthy fat to be encouraged in the diet  
   b. Decrease the risk of heart disease  
   c. Are often man-made from vegetable oils processed to hold more hydrogen  
   d. Are a type of essential fatty acid

17. Vitamin C is needed in the body for all of these needs except  
   a. Promote healthy immune system  
   b. Form collagen, part of healthy bones and ligaments  
   c. Prevent goiter  
   d. Increase absorption of non-heme iron

18. Time, price, convenience, and taste are factors that influence food choices.  
   a. True  
   b. False

19. Taste preferences  
   a. Are based in both genetics and experience and can be changed over time  
   b. Are determined by genetics and cannot be changed  
   c. Are solely learned behaviors  
   d. Are set by 24 months and do not vary

20. The natural flavor in foods can be enhanced by all of the following except  
   a. Preparation techniques such as toasting seeds or nuts  
   b. Slow cooking  
   c. Serving tart foods cold  
   d. Using lemon juice on foods with bitter flavor such as salad greens or Brussels sprouts

21. Portion sizes  
   a. Do not matter as long as a food is low in fat  
   b. Have become larger for many foods over the last 20 years  
   c. Are regulated in restaurants to meet a national standard  
   d. Are not used in school meal programs
22. Fluid needs
   a. Can be met with water, beverages, and foods
   b. Are not a concern in nutrition
   c. Are the same for all people
   d. Can only be met with water
Reference List


Paddock, C. (n.d.) *The atkins diet… is it all it’s cracked up to be?* Vanderbilt University. Retrieved from http://www.vanderbilt.edu/AnS/psychology/health_psychology/atkins.htm


