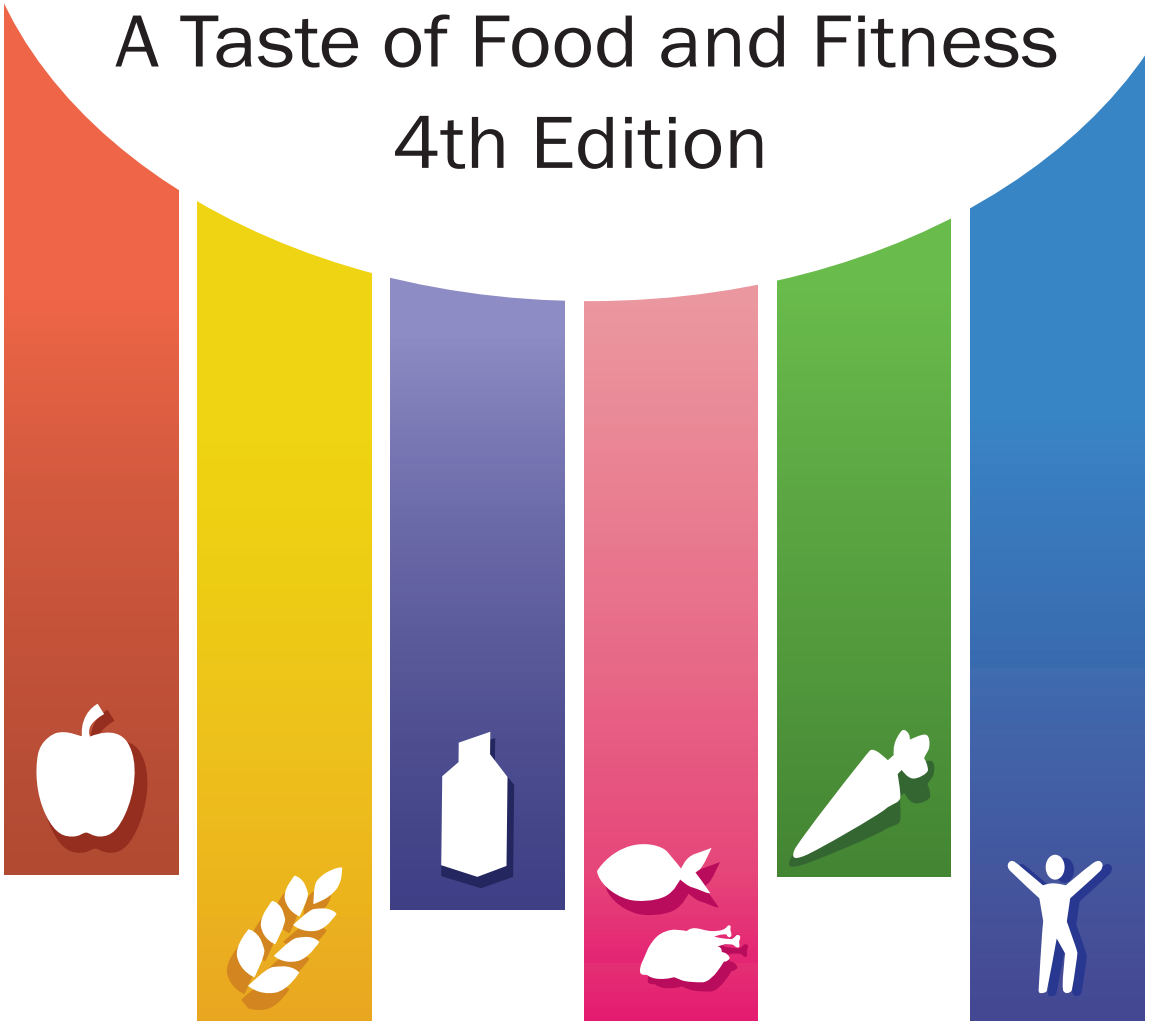
Nutrition 101

A Taste of Food and Fitness

4th Edition



INSTITUTE OF child nutrition

RESOURCES • TRAINING • RESEARCH

Instructor's Manual

Nutrition 101:
A Taste of Food and Fitness
4th Edition

Instructor's Manual

PROJECT COORDINATOR

Pat Richardson, MEd

EXECUTIVE DIRECTOR

Aleshia Hall-Campbell, PhD, MPH

Key Area 1: Nutrition

Professional Standards Code: 1200 & 1300

2018

Institute of Child Nutrition

The University of Mississippi

The Institute of Child Nutrition 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
Improve the operation of child nutrition programs through research, education and training, and information dissemination.

VISION
Lead the nation in providing research, education, and resources to promote excellence in child nutrition programs.

MISSION
Provide relevant research-based information and services that advance the continuous improvement of 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 Institute of Child Nutrition 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.

Suggested Reference Citation:
Institute of Child Nutrition. (2018). *Nutrition 101*: *A taste of food and fitness, 4th Edition*. University, MS: Author.

For more information, please contact helpdesk@theicn.org. 03/29/2018

Table of Contents

Background Information

Instructor's Note: *The purpose of the background information section is to help you become familiar with the context of the training. It is not a part of the lesson detail.*

Welcome to the Institute of Child Nutrition's (ICN) *Nutrition 101: A Taste of Food and Fitness, 4th Edition*. This training provides a basic overview of nutrition information. The information can be used at home or at work in the school nutrition program. The Instructor's Manual assists trainers in providing engaging face-to-face nutrition education and skill development. The learning objectives for each lesson are achieved through completion of all lesson components.

ICN designed this training to be interactive so the participants are actively involved in learning nutrition concepts they can apply in their school nutrition programs. School nutrition staff are responsible for preparing and serving students healthful and safe meals. This training provides tools and ideas to assist them in meeting this goal.

The Training-at-a-Glance shows the time requirements for teaching each lesson. A Preparation Checklist provides the trainers with supplies for teaching school nutrition staff.

The Instructor's Manual is organized into lessons, each addressing specific learning objectives. This training consists of an introduction and seven lessons. Each lesson includes the following:

- Lesson plan with learning activities
- Slide presentation
- Physical activity booster
- Handouts used in the lesson
  - **Cafeteria Connection** – informational pages that create a connection between the basics of good nutrition covered in the lesson and how school nutrition programs can incorporate good nutrition practices every day.
  - **Nutrition Nuggets** – additional information to support the content of the lesson.
  - **24-Hour Food Recall and 24-Hour Physical Activity Recall** – give participants insight to what they eat and the amount of physical activity they participate in a certain time period. The trainer does not review these.
  - **Personal Discovery Assessment** – assessment activity that gives participants an opportunity to learn more about personal eating and activity habits; the trainer does not review this.
  - **Resource** – organizations and contacts for more information on the lesson topic; these pages are identified as Resource in the title of the handout.

The companion Participant's Workbook contains helpful information, activities, handouts, and information sheets.

The instructor's script is written with the following prompts:

SAY: What the instructor is to say to participants. This content teaches the learning objectives.

ASK: This prompt is used when the instructor should ask the participants a question. If the question warrants feedback, it will be followed by the FEEDBACK prompt.

FEEDBACK:
This prompt is used to ensure certain elements are covered in discussions. This may include possible answers for instructors to give.

DO: This prompt is used to explain what the instructor/participants are to do. This can be used to lead into activities, perform demonstrations, show videos, or any other action that the instructor would need to know.

SHOW SLIDE: ***This prompt is used for showing slides. Each slide has its own unique title. All content in the slide presentation should be discussed in the Instructor's Manual using the" DO," " ASK," or" SAY" commands.***

PRE-/POST-ASSESSMENTS: This training includes a pre- and post-assessment that will be administered at the beginning and at the end of the training.

Professional Standards

Nutrition Education – 1200

Employee will be able to utilize resources to prepare and integrate age/grade appropriate nutrition education curriculum with school nutrition program.

1210 – Nutrition Activities

General Nutrition – 1300

Employee will be able to understand the *Dietary Guidelines for Americans*, USDA food guidance concepts, and general nutrition principles.

1310 – *Dietary Guidelines for Americans*, MyPlate and school nutrition

1320 – General Nutrition

Key Area 1: Nutrition

Training Objectives

At the end of the training, participants will be able to accomplish the following objectives:

Lesson 1: Nutrition is Important to You!

- Identify a personal interest in health and nutrition.
- Identify roles nutrition plays in promoting health throughout the body.
- Describe how the School Breakfast Program contributes to students' health and school performance.

Lesson 2: Tools for Guiding Food Choices

- Recognize the *Dietary Guidelines for Americans* (*DGAs*) and USDA's MyPlate.
- Identify information on the Nutrition Facts label that is useful in making food choices consistent with the dietary advice of the *Dietary Guidelines for Americans* and MyPlate.
- Describe ways the school meal programs may reflect aspects of the *Dietary Guidelines for Americans* that contribute to students' health and ability to learn.

Lesson 3: The Energy Nutrients

- Identify essential energy nutrients, macronutrients, the major function each plays in a healthy body, and food sources of each.
- Identify food sources of carbohydrates and how the body uses them.
- Describe how the different types of fats and oils influence health and chronic disease risks.
- Describe how school meals are planned to balance nutrients and contribute to students' health.

Lesson 4: Vitamins and Minerals

- Identify essential vitamins and minerals, 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 the major and trace minerals.
- Describe how iron intake influences a student's ability to learn.

Lesson 5: Alternate Eating Patterns

- Explain how school nutrition programs can accommodate students who prefer a vegetarian lifestyle.
- Identify the differences between the four most common types of vegetarian eating patterns.
- Describe how plant-based foods can provide complete proteins.
- Describe the difference between Type 1 and Type 2 diabetes.
- Distinguish between food allergies, food intolerances, and celiac disease.
- Demonstrate reading food allergens on a food label.

Lesson 6: Putting it All Together

- Identify factors that influence food choices.
- Describe how school nutrition professionals can incorporate students' taste preferences into daily meals that will contribute to students' health.
- State ways to enhance the flavor of food without adding salt, sugar, or fat.

Lesson 7: Nutrition Issues in the Media

- Identify common signs of misleading nutrition information in the media.
- Determine ways school nutrition programs can be a source of credible nutrition information for children and adults accessing the programs.

Ground Rules

Instructor's Note: *You should have received some Ground Rules in the toolkit box from ICN to post around the room prior to class.*

- **Show up on time and come prepared.** Be prompt in arriving and in returning from breaks. Come with a positive attitude.
- **Stay mentally and physically present.** Be present and stay on task. Listen attentively to others and avoid disruptive side conversations.
- **Let everyone participate.** Be patient when listening to others speak. Treat all participants with the same respect that you would want from them.
- **Listen with an open mind.** Stay open to new ways of doing things, and listen for understanding. You can respect another person's point of view without agreeing with them.
- **Think before speaking.** Seek first to understand, then to be understood. Avoid using idioms, three letter acronyms, and phrases that can be misunderstood.

Training-at-a-Glance

Time Allowed	Topic	Activities	Materials
20 minutes	• Introduction	• Pre-Assessment	• Participant's Workbook • Pre-Assessment
Lesson 1: Nutrition is Important to You!			
Objective: Identify a personal interest in health and nutrition.			
10 minutes	• Welcome • Personal Health Concerns	• Ice Breaker	• Participant's Workbook
Objective: Identify roles nutrition plays in promoting health throughout the body.			
15 minutes	• Roles of Nutrition • Chronic Diseases and Health • Physical Activity	• 24-Hour Physical Activity Recall • Physical Activity Booster • 24-Hour Food Recall	• Participant's Workbook
Objective: Describe how the School Breakfast Program contributes to students' health and school performance.			
15 minutes	• Cafeteria Connection	• Reflections Activity	• Participant's Workbook
Lesson 2: Tools for Guiding Food Choices			
Objective: Identify the *Dietary Guidelines for Americans (DGAs)* and the USDA's MyPlate.			
20 minutes	• *Dietary Guidelines for Americans* • MyPlate	• Calculating Fat Content and Percentage • Physical Activity Booster • Identifying Whole Grains • Vegetable Subgroup Relay • MyPlate: Interactive Website • 24-Hour Food Recall	• Participant's Workbook • Food Models
Objective: Identify information on the Nutrition Facts label useful in making food choices consistent with the dietary advice of the *Dietary Guidelines for Americans* and MyPlate.			
20 minutes	• Nutrition Facts Label • Understanding the Nutrition Facts Label • Changes to the Nutrition Facts Label		• Participant's Workbook • Food Models
Objective: Describe ways the school meal programs may reflect appropriate aspects of the *Dietary Guidelines for Americans* that contribute to students' health and ability to learn.			
15 minutes	• Cafeteria Connection	• Reflections Activity	• Participant's Workbook

Time Allowed	Topic	Activities	Materials
Lesson 3: The Energy Nutrients			
Objective: Identify essential energy nutrients, macronutrients, the major function each plays in a healthy body, and food sources of each.			
25 minutes	• Proteins		• Participant's Workbook
Objective: Identify food sources of carbohydrates and how the body uses them.			
25 minutes	• Carbohydrates • Sugars • Starches • Dietary Fiber	• Sugar, Sugar Everywhere • Beverage Calories	• Participant's Workbook
Objective: Describe how the different types of fats and oils influence health and chronic disease risks.			
25 minutes	• Fats	• My Lipids, They Wrote Me a Letter	• Participant's Workbook
Objective: Describe how school meals are planned to balance nutrients and contribute to students' health.			
20 minutes	• Lowdown on Low-Fat Recipes • Cafeteria Connection • Nutrition Facts Label	• Reflections Activity • Physical Activity Booster	• Participant's Workbook
Lesson 4: Vitamins and Minerals			
Objective: Identify essential vitamins and minerals, micronutrients, the major function each plays in a healthy body, and food sources of each.			
25 minutes	• Vitamins		• Participant's Workbook
Objective: List the fat-soluble vitamins.			
10 minutes	• Fat-soluble Vitamins		• Participant's Workbook
Objective: List the water-soluble vitamins.			
15 minutes	• Water-soluble Vitamins	• Physical Activity Booster	• Participant's Workbook
Objective: Identify the major and trace minerals.			
20 minutes	• Major Minerals • Trace Minerals • Water	• Physical Activity Booster	• Participant's Workbook
Objective: Describe how iron intake influences a student's ability to learn.			
15 minutes	• Cafeteria Connection	• What's for Lunch? • Reflections Activity	• Participant's Workbook • Food Models

Time Allowed	Topic	Activities	Materials
Lesson 5: Alternate Eating Patterns			
Objective: Explain how school nutrition programs can accommodate students who prefer a vegetarian lifestyle.			
15 minutes	• Alternate Eating Patterns • Vegetarian Eating Patterns • Cafeteria Connection		• Participant's Workbook
Objective: Identify the differences between the four most common types of vegetarian eating patterns.			
15 minutes	• Lacto-ovo • Lacto • Ovo • Vegan • Health Benefits • Nutrition Benefits • Nutrition to Focus On		• Participant's Workbook
Objective: Describe how plant-based foods can provide complete proteins.			
20 minutes	• Protein • Nutrition Nuggets	• Physical Activity Booster	• Participant's Workbook
Objective: Describe the difference between Type 1 and Type 2 diabetes.			
10 minutes	• Diabetes • Type 1 • Type 2 • Carbohydrate Counting		• Participant's Workbook • Food Models
Objective: Distinguish between food allergy, food intolerances, and celiac disease.			
15 minutes	• Food Allergies • Major 8 Allergens • Food Intolerance • Celiac Disease		• Participant's Workbook
Objective: Demonstrate reading food allergens on a food label.			
10 minutes	• Food Allergen Labeling and Consumer Protection Act • Nutrition Label	• Reflections Activity	• Participant's Workbook
Lesson 6: Putting it All Together			
Objective: Identify factors that influence food choices.			
20 minutes	• Influencing Factors		• Participant's Workbook
Objective: Describe how school nutrition professionals can incorporate students' taste preferences into daily meals that will contribute to students' health.			
20 minutes	• Cafeteria Connection		• Participant's Workbook

Time Allowed	Topic	Activities	Materials
Objective: State ways to enhance the flavor of food without adding salt, sugar, or fat.			
15 minutes	• Nutrition Nuggets • Portion Control	• Physical Activity Booster • Personal Discovery Assessment • My Eating Habits • Reflections Activity	• Participant's Workbook
Lesson 7: Nutrition Issues in the Media			
Objective: Identify common signs of misleading nutrition information in the media.			
20 minutes	• Nutrition News • Evaluating Nutrition Messages		• Participant's Workbook
Objective: Determine ways school nutrition programs can be a source of credible nutrition information for the children and adults accessing the programs.			
20 minutes	• Cafeteria Connection	• ABC Wrap-up	• Participant's Workbook
10 minutes		• Post-Assessment	• Post-Assessment
5 minutes	• Thank You	• Pass out Certificate of Completion	• Certificate of Completion
8 Hours Total Instructional Training			

Instructor's Note: *This training includes two (2) 15 minutes breaks and a 1-hour lunch break. The morning break should be between 9:45 and 10:15. The afternoon break should be between 2:00 and 2:30. Use your best judgement depending on where you are in the materials as to when to take the breaks.*

Preparation Checklist

Instructions: The following tasks are necessary for presenting this training. Assign each task to a specific person and determine the date that each task must be completed. Keep track of the progress by checking off tasks as they are completed. [Items may vary according to needs of particular lessons.]

Task	Person Responsible	Date Completed	✓
Reserve equipment and gather supplies as needed for use on the day of class (6 weeks prior). **Instructor's Manual** Roster of participants attending for instructor Participants' sign-in sheets **List of equipment and supplies needed** Microphone (preferably wireless) Computer to present slides and/or DVD Projector and Screen Wireless presenter device and laser pointer Flip chart paper (self-adhesive strip sheets) Painter's tape (do not use masking tape) Markers (flip chart) Food Models Pens, pencils, note paper, highlighters, self-adhesive notes, page markers, index cards (each table) Name tags and table tents			
Participant's Workbook Agenda, roster of presenters/participants, and handouts Pre-/Post-Assessments (available at www.theicn.org)			

A Taste of Food and Fitness

Lesson 1:

Nutrition is Important to You!

Nutrition is Important to You!

Introduction

SHOW SLIDE: ***Nutrition 101: A Taste of Food and Fitness, 4th Edition***

Instructor's Note: *Have slide on the screen as participants enter the classroom.*

DO: State your name if you have not been introduced. Welcome class participants.

SAY: Welcome to *Nutrition 101: A Taste of Food and Fitness*. It is great to see all of you, and I look forward to working with you today. This 8-hour training is provided by (state the organization sponsoring the training), and it will provide you with a basic overview of nutrition. The information can be used at home or at work in the school nutrition program. It will help you offer the students in your school healthy and nutritious meals as well as provide information to help them and their families live a healthy lifestyle.

The Institute of Child Nutrition (ICN) has provided you with a Participant's Workbook that contains information, activities, and handouts developed to help you gain a better understanding of nutrition. Additional resources and references used in the development of this course are included in the Appendix of the workbook.

You will find items on your table (e.g., index cards, sticky notes, table name tents, pens, markers) that will be used throughout the day.

Housekeeping

SAY: There are a few housekeeping items to review.

- The location of the restrooms is (point out where to find the restrooms).
- Be sure you sign the sign-in sheets; there is one for ICN and one for the training sponsor.
- There will be three breaks: 15-minute break in the morning and afternoon and a 1-hour break for lunch. Starting and ending breaks and lunch on time will allow us to cover all the information and activities in the course.
- I will try to answer questions throughout the training; however, sometimes a question requires research or a longer answer than time allows. Because all your questions are important, a "Bike Rack" has been posted. Write your question on a sticky note and post it to the Bike Rack.

Instructor's Note: *Write" Bike Rack" at the top of a flip chart page and post it in a convenient area of the room.*

SHOW SLIDE: *Pre-Assessment*

DO: Pass out the **Pre-Assessment**. Explain the identifier to be placed in the upper right hand corner.

SAY: Before we begin the training, I would like you to complete an assessment. The purpose is to review what you already know about nutrition. On the top right hand corner of your pre-assessment, put a simple, identifiable symbol. For example, the last 4-digits of your phone number or birth date. You will need to remember the identifier you use because it will be used on the Post-Assessment so we can see how much you learned throughout the class. After you complete the assessment, put it on one side of the table, and I will come by and collect it.

Instructor's Note: *Instructor may choose a different way to collect assessments.*

SHOW SLIDE: *Lesson 1: Nutrition is Important to You!*

ACTIVITY: Introduction

Instructions: Icebreaker – Start with yourself, and then ask each participant to give his or her name and share one nutrition/health interest or reason for enrolling in this class. Allow 10 seconds per participant. If the class is too large, have participants meet 2 or 3 people they do not know and share a personal nutrition/health interest. Give them about 5 minutes.

SAY: Let's begin by introducing ourselves and share one nutrition or health interest or a reason for enrolling in this class. I will begin.

OBJECTIVE: Identify a personal interest in health and nutrition.

SAY: It is important that we use factual information to make decisions. According to the research completed for the *Dietary Guidelines*, about three-fourths of the population has an eating pattern that is low in vegetables, fruits, dairy, and oils. More than half of the population is meeting or exceeding total grain and protein foods recommendations but are not meeting the recommendations for the subgroups within each of these food groups. Most Americans exceed the recommendation for added sugars, saturated fats, and sodium. This training will give you basic information and help you sort out the facts from fiction. Food choices affect every part of the body from head to toe. Nutrition habits influence our ability to work and play. Good health, both today and in the future, depends on the food and nutrition choices we make every day.

OBJECTIVE: Identify roles nutrition plays in promoting health throughout the body.

SHOW SLIDE: ***Roles of Nutrition in Health – Supplies Fuel***

SAY: Eating a variety of foods from each of the food groups provides nutrients the body needs. We will begin with how nutrition affects health at the very top of the body. Food choices affect the brain's health and ability to work. The ability to think, problem-solve, create, and work depends on the brain having a consistent supply of energy, which is provided by glucose from a variety of food. Good nutrition helps keep us emotionally and mentally focused and you do not get hangry (hungry and angry). Eating regularly spaced, balanced meals provides the brain with a steady supply of fuel.

Nutrition can affect our vision. Many vitamins and minerals are essential for eye health. For instance, phytochemicals in dark green and red/orange vegetables may help reduce the risk of an age-related eye disease. Eating plenty of vegetables may protect our eye health long term.

Eating nutritious foods help keep our teeth and gums healthy, and healthy teeth and gums allow us to eat a wider variety of foods, such as nuts, raw fruits, and raw vegetables. Vitamin C and calcium are critical nutrients for teeth, gums, tissue growth, and repair.

SHOW SLIDE: ***Roles of Nutrition in Health – Blood Pressure***

SAY: Consuming food high in fiber and low in sodium can help keep blood pressure normal, which is important because maintaining optimal blood pressure can reduce the risk of stroke.

SHOW SLIDE: ***Roles of Nutrition in Health – The Body Systems***

SAY: Good nutrition is vital to the function and health of all the body's systems, which includes the digestive, cardiovascular, endocrine, reproductive, nervous, skeletal, and respiratory systems, as well as our skin.

The body works hard each day repairing tissues, converting food into energy, and maintaining good health. Think about the heart and lungs. They are constantly working, even as we sleep. The body meets these needs best when all its nutrition needs are met through wise food choices, that includes nutrients the body needs.

SHOW SLIDE: ***Roles of Nutrition in Health – Digestive Health***

SAY: Fruits, vegetables, whole grains, and low-fat or fat-free milk and milk products provide nutrients that keep our digestive system healthy. For example, a breakfast of oatmeal, low-fat milk, and orange sections provides many different nutrients that help the digestive system work properly. Oatmeal provides fiber, while milk has calcium and vitamin D, and orange sections contain vitamin C and fiber.

SHOW SLIDE: ***Roles of Nutrition in Health – Strong Bones***

SAY: Food choices today are an investment in future health and longevity. Let's look at how current nutrition choices influence our health in later years. During childhood and adolescence, bones grow and strengthen, growing the most during our teen years. After the age of 30, bones slowly lose calcium, but you can reduce this loss by consuming the recommended amount of calcium. Throughout the lifecycle, it is important to eat foods that provide calcium and other nutrients needed to build strong bones. Calcium-rich foods like milk, cheese, yogurt, white beans, black-eyed peas, fish with bones, and broccoli are needed daily. Bones are living tissue, and they are repaired and maintained throughout the lifespan.

Nutrition and health habits during the adult years also help influence bone strength. Keep bones strong by eating enough calcium-rich foods and participating in regular, weight-bearing activity, such as walking daily. By keeping your bones strong, it reduces the risk of osteoporosis, also known as brittle bone disease.

Chronic Diseases and Health

SHOW SLIDE: ***Family History and Risk of Chronic Diseases***

SAY: Having a family history of heart disease or diabetes does not mean a person is destined to have the disease. Many people can reduce their risk of disease by choosing foods that promote health and by leading an active lifestyle. For example, the American Heart Association recommends choosing a variety of vegetables and fruits, lean proteins (i.e. poultry without skin and fish), healthy fats, whole grains low-fat dairy products, and fewer added fats to keep dietary fat and cholesterol in a healthy range. Fiber-rich diets that include whole grains, whole grain-rich foods, fruits, and vegetables are also linked to a reduced risk of heart diseases and Type 2 diabetes.

The handout **Interesting Facts About Chronic Diseases** list some nutrition and physical activity related diseases and the risk factors. Let's review the handout.

SHOW SLIDE: ***Importance of Physical Activity***

Physical Activity

SAY: Physical activity helps to improve our health by keeping our muscles strong and our body's burning energy. Regular, physical activity protects and improves the health of the bones, heart, and lungs.

ASK: How much physical activity should you do per week?

FEEDBACK:

- 150 minutes per week or an optimal level of 300 minutes per week
- You can break it up into 10 to 15 minutes at a time

ASK: Can anyone tell us the difference between physical activity and exercise? If there is a difference, what is it?

DO: Allow participants to respond.

FEEDBACK:

- Physical activity is any movement of the body that produces skeletal muscle contraction increasing energy exertion above a resting level.
- Exercise is a type of physical activity that is planned, structured, repetitive, and attempts to improve or maintain physical fitness, performance, or health.

SAY: Physical activity helps maintain a healthy weight and increases fitness. Active, fit people reduce their risk of bone loss, Type 2 diabetes, heart disease, and some types of cancer. In addition, it feels good to be fit and active because the body releases endorphins when you exercise. Endorphins are a naturally occurring chemical that is released in the brain to reduce pain and make you feel energized or relaxed.

Nutrition choices also contribute to a healthy body weight. Maintaining good nutrition and engaging in physical activity can work together to balance the calories from foods eaten with the energy used in physical activity. This balance is key to maintaining a healthy weight. The location where extra weight is stored on the body can influence health. Extra weight in the chest and abdomen increases the risk for heart disease. Genetics often determines your body type, but good nutrition and being physically active can help prevent or reduce excess body weight.

Losing weight, eating balanced meals, and increasing physical activity are essential components in the treatment of some chronic diseases such as for Type 2 diabetes, which is becoming increasingly common among American adults and children. Fitness is such an important part of good nutrition; look in your workbook at the **24-Hour Physical Activity Recall** worksheet.

SHOW SLIDE: ***Activity: 24-Hour Physical Activity Recall***

ACTIVITY: 24-Hour Physical Activity Recall

Instructions: Ask the participants to complete the **24-Hour Physical Activity Recall** worksheet to record all the physical activities they have completed in the last 24 hours.

SAY: Use the **24-Hour Physical Activity Recall** worksheet to record all the physical activities you have completed in the last 24 hours. The goal of this activity is to make you more aware of your physical activity habits. Some physical activities may include walking, climbing stairs, shopping, exercising at a gym, yard work, walking the dog, etc. When you have completed this activity, keep the recall worksheet where you can find it. We will refer to it throughout the training.

DO: Allow participants time to fill out the worksheet and discuss their activities with their partner. Ask for volunteers to tell one of their activities.

SAY: Now is a good time to take a break and get physically active.

SHOW SLIDE: ***Physical Activity Booster***

SAY: This physical activity booster helps us focus on increasing movement through walking and monitoring the number of steps taken in a day. If you are not able to participate in the activity, you may observe.

ACTIVITY: Steps for Better Health

Instructions: Decide where to conduct the activity. Good places to walk include around the room or up and down a nearby hallway. Make sure the walking area is clear of any obstacles that could pose a danger. This activity will take about 5 minutes.

DO: Keep time. Tell participants when to start walking and when to stop.

SAY: Take as many steps as possible in one minute, and count the number of steps you take in that minute.

DO: Have participants return to their seats.

ASK: How many steps did you take?

DO: Allow participants time to respond.

ASK: How many steps should you take each day?

FEEDBACK:
Many walking programs suggest working up to taking 10,000 steps a day for good health. If you are not taking 10,000 steps a day, determine how many steps you usually take, and then make a plan to work up to routinely taking 2,000 more steps a day within a few weeks.

ASK: How can you add steps?

DO: Allow participants to answer.

FEEDBACK:

- Adding a brisk, 20-minute walk to your daily routine means adding about 2,000 steps.
- Walking with a friend or family member is fun and makes the time pass faster.
- Park farther from the building.
- Take the stairs instead of the elevator.
- Fitness tracker

SAY: Taking more steps every day keeps you on the path to personal change and improvement. Making food choices for better nutrition is similar to starting a walking program. Every day take more steps and choose heathy foods for a healthier lifestyle.

SHOW SLIDE: *Other Nutrition Considerations*

SAY: We have talked about nutrition being important to our entire body. It is also important to recognize the role of food and nutrition in our personal lifestyle. We eat for many reasons, including nourishment, social bonding, enjoyment, and sometimes, emotions. Emotion and food connections are normal. From our very first eating experiences as babies, food and feelings are linked. Occasionally making a special meal or celebrating with a special food or dessert helps us connect with loved ones. Celebrations are part of a balanced life and a healthy expression of food and feelings.

An imbalance occurs when food takes center stage in filling emotional needs, which can lead to serious health concerns. Preoccupation with food and chronic overeating are examples of the wide range of eating disorders associated with emotions.

Eating habits are an important aspect of healthy living, but not the total focus. One way to keep food and nutrition in the proper perspective is to keep pleasure and enjoyment in our food choices. We eat foods that taste good to us in moderation. Eating should be a pleasure. Sometimes we eat without really paying attention to the tastes, textures, and sensations of food. Eat food slowly to enjoy the flavor and decrease the chance of overeating.

ASK: What foods did you hate or not eat as a child, but like now?

What are some ways you can help students try new foods?

DO: Allow participants time to respond.

FEEDBACK:

- Offer small samples on the serving line and ask the students to taste the new food item.
- Serve the new food items several time for repeat exposure.
- Invite students to a tasting party.
- Emphasize taste testing of new food items.

SHOW SLIDE: ***Taste and Enjoy a Variety of Foods***

SAY: Taste and enjoy a variety of foods such as the ones on this slide. Notice the variety of colors. Use color as your guide to consume a variety of nutrients in a variety of foods.

What does a variety of foods look like? It includes proteins, whole grains, fruits, vegetables, and dairy. All of these foods contribute to growth, and all are needed. Eating a variety of foods ensures the body is getting the amount of vitamins, minerals, and other nutrients it needs. The handout **Healthy Eating and Healthy Weight** gives you some ideas on how to eat healthy and maintain a healthy weight. Take a few minutes to review the handout.

DO: Allow participants two or three minutes to review the handout.

SHOW SLIDE: ***Activity: 24-Hour Food Recall***

ACTIVITY: 24-Hour Food Recall

Instructions: Ask the participants to complete the **24-Hour Food Recall** worksheet by writing down everything they have consumed in the last 24 hours, including water, gum, hard candies, coffee, and tea. Then, record everything consumed on a **weekend** day (Saturday or Sunday).

SAY: It is time for an activity. You are going to look at your personal eating habits. The goal of the activity is for you to become more aware of your nutrition habits. Locate the **24-Hour Food Recall** worksheet in your workbook.

Take a few minutes to record the foods and beverages, including water, gum, hard candies, coffee, and tea, you consumed in the last 24 hours. Next, record everything that you remember you consumed on the last **weekend** day (Saturday or Sunday).

DO: Allow participants time to fill out the worksheet.

ASK: How do the two recalls compare? Do you think you performed enough physical activity to balance your caloric intake? Where can you improve?

DO: Allow participants to respond.

FEEDBACK:

- Burned more calories than taken in
- Burned less calories than taken in
- Burned as many calories as taken in
- Need more physical activity

SAY: Recording food and beverage intake can help you realize when you are consuming poor quality calories and where you are missing important nutrients. When you have completed this activity, keep both recall worksheets where you can find them. We will refer to them throughout the training.

OBJECTIVE: Describe how the School Breakfast Program contributes to students' health and school performance.

SHOW SLIDE: ***Breakfast for Better Health***

SAY: Breakfast has been called the most important meal of the day. There are many reasons why breakfast is important. It gives your body a kick-start in the morning. The body has been at rest for 7-8 hours and has not received any nutrients during that time. The nutrients you feed your body at breakfast breaks the fasting the body has experienced during the night, starts the body's metabolism, and helps to burn calories during the day. Breakfast influences physical and mental performance and it restores the blood glucose level to normal. People who do not eat breakfast have an increased risk of obesity and related chronic diseases. The reason is the body is starved for nutrients so the person may eat unhealthy snack foods or overeat or consume unhealthy foods at the next meal.

A healthy school breakfast provides students with one-fourth of the nutrition they need each day. Children who eat breakfast perform at a higher level in school, are more physically active, and have an increased ability to focus.

Each lesson features a Cafeteria Connection that links the work you do every day in the school nutrition programs to today's nutrition messages. The Cafeteria Connection for this lesson highlights the important role breakfast has in students' health and school performance.

Locate the **Cafeteria Connection: Breakfast for Better Health** in your workbook. Take a few minutes and review the handout. There are several resources listed that offer some great materials to help promote school breakfast.

The handout **Resource: Nutrition and Health Information** in your workbook includes general information and is intended only as a reference. Remember to check with a state licensed healthcare professional if you have any health concerns.

SHOW SLIDE: *Activity: Lesson 1 Reflections*

Instructor's Note: *If it is a small group, let everyone have an opportunity to answer a question. Use the size of the group to decide how you want the questions answered. If it is a large group, you might have each table group answer the question. Call on a different table group for each question. If it is a small to medium size group, you can have the participants raise their hand and you call on someone. Another suggestion is having the participants jump up and shout out the answer. Read the instructions to the participants.*

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question, and I want you to _____ (decide how you want the participants to answer). Some of the questions have several answers.

Reflections

1. What are some of the roles nutrition plays in good health?
   - Good nutrition provides fuel for the brain and gives it the ability to work, problem solve, and create.
   - Good nutrition provides vitamins and minerals essential for eye health. Dark green and red/orange vegetables may help to reduce the risk of age-related eye disease.
   - Good nutrition helps keep teeth and gums healthy.
   - Food high in fiber and low in sodium helps keep blood pressure normal and reduces the risk of stroke.
   - Good nutrition helps the body's systems function properly. Examples of the body's systems are digestive, cardiovascular, endocrine, reproductive, nervous, skeletal, respiratory, and skin.
   - Good nutrition helps bones grow and strengthen during a person's early years and reduce the risk of bone disease in their later years.
   - Good nutrition helps to reduce the risk of chronic diseases.

2. Why is physical activity important to good health?
   - It helps to keep muscles strong.
   - It protects and improves the health of bones, heart, lungs, and mind.
   - It helps to maintain a healthy weight and increase the body's fitness.

3. How many steps should a person take each day?
   - 10,000 steps

4. Why is breakfast considered the most important meal of the day?
   - While we are sleeping, our body is fasting because it is not receiving nourishment. The morning meal (breakfast) breaks the fasting to give our body the fuel it needs to make our muscles and brain begin their daily work.

5. How does eating breakfast impact students in school?
   - Less likely to be overweight more likely to have higher nutrient intakes
   - Better test scores
   - Fewer behavioral problems in class
   - Longer attention spans
   - Less absences
   - Fewer missed days due to illness
   - Fewer visits to the nurse's office
   - Better nutrition through a balanced meal

ASK: Does anyone have any questions?

DO: Allow participants to respond. Answer questions to the best of your ability. If you do not know the answer, tell the participants you do not know the answer and will need to research the topic and get back with them.

A Taste of Food and Fitness

Lesson 2:

Tools for Guiding Food Choices

Tools for Guiding Food Choices

SHOW SLIDE: *Lesson 2 : Tools for Guiding Food Choices*

SAY: Lesson 2 Tools for Guiding Food Choices is a review of the variety of tools you can use to help make good food choices.

SHOW SLIDE: *Three Tools for Guiding Food Choices*

SAY: The focus of this lesson is on the *Dietary Guidelines for Americans*, MyPlate, and the Nutrition Facts label. These three tools for guiding food choices were developed by the U.S. Department of Health and Human Services and the U.S. Department of Agriculture.

OBJECTIVE: Identify the *Dietary Guidelines for Americans (DGAs)* and USDA's MyPlate.

SHOW SLIDE: *Dietary Guidelines for Americans*

SAY: The *Dietary Guidelines for Americans (DGAs)* is the basis for the U.S. dietary guidance system. The *DGAs* serve as a tool to help individuals ages 2 years and older adopt healthy eating patterns and make healthy choices in their daily lives, while enjoying foods and celebrating cultural and personal traditions through food. They are reviewed and updated every 5 years to reflect the current scientific research.

The *DGAs* convert science into clear, food-based guidance that can be relied upon to help individuals choose a healthy eating pattern and prevent the risk of chronic disease. Everything we eat and drink matters!

SHOW SLIDE: *Five Overarching Guidelines*

SAY: The current edition of the *Dietary Guidelines* is structured around five key concepts that encourage healthy eating patterns and recognize that individuals will need to shift or change their food and beverage choices to achieve a healthy lifestyle. The *DGAs* also express the idea that a healthy eating pattern is flexible, and individuals can enjoy foods that meet their personal, cultural, and traditional preferences that fit within their budget.

The five key concepts are as follows:

1. Follow a healthy eating pattern across the lifespan.
2. Focus on variety, nutrient density (nutrient-rich), and amount.
3. Limit calories from added sugars, saturated fats, and reduce sodium intake.
4. Shift to healthier food and beverage choices.
5. Support healthy eating patterns for all.

SHOW SLIDE: *DGAs Key Recommendations*

SAY: A healthy eating pattern is based on individual choices and preferences. It is not a rigid way of life, but rather a flexible pattern with plenty of options. For more information on ways to incorporate variety in your eating pattern, look in your workbook at the handout ***DGAs* Key Recommendations**. Review the handout and highlight items of importance to you.

DO: Allow participants to review and highlight the handout.

ASK: What are some of the things you highlighted? Are those items or habits you need to change?

DO: Allow participants to answer.

SAY: Many individuals will need to shift or gradually change their current eating pattern to achieve a healthy one. Choosing a healthy eating pattern at an appropriate calorie level helps to achieve and maintain a healthy body weight, supports nutrient adequacy, and reduces the risk of chronic diseases. The *Dietary Guidelines* emphasize the importance of overall healthy eating patterns. What really matters is the big picture—how a person's food and beverage choices add up over their lifetime. Eating patterns have a significant impact on health. A healthy eating pattern is one of the most powerful tools we have to reduce the onset of disease and to help prevent obesity, heart disease, high blood pressure, and Type 2 diabetes. Currently, about half of all American adults have one or more of these diet-related chronic diseases.

Instructor's Note: *There is a bag of Food Models in the toolkit that can be used in several places during the training. They are for you to use at your discretion.*

Nutrient-dense foods, focus on variety and amount

SHOW SLIDE: *Nutrient-dense Foods and Beverages*

ASK: What are nutrient-dense or nutrient-rich foods?

DO: Allow participants to respond.

FEEDBACK:
Nutrient-dense or nutrient-rich foods and beverages provide the most vitamins, minerals, and other nutrients for the amount of calories in the food and may have a positive health effects. They are naturally lean or low in solid fats and have little or no added sugars, refined starches, or sodium. Nutrient-dense foods are the foundation of a healthy eating pattern and meets food group recommendation within calorie and sodium limits.

SAY: To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods among all food groups in recommended amounts. The *Dietary Guidelines* provide recommendations about how to follow a healthy eating plan. It includes the following nutrient-dense foods:

- A variety of vegetables from all subgroups [dark green, red/orange, legumes (beans and peas), starchy, and other vegetables]
- Whole fruits (fresh, canned, frozen, and dried)
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and fortified soy beverages

- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), soy products, and nuts and seeds
- Oils, including those from plants (canola, corn, olive, peanut, safflower, soybean, and sunflower), as well as oils that are naturally present in foods (nuts, seeds, seafood, olives, and avocados)

These foods are only nutrient-dense if they are prepared with little or no added solid fats, sugars, refined starches, or sodium.

SHOW SLIDE: *Foods to Limit*

SAY: The *DGAs* suggest limiting foods and beverages with added sugars, saturated fats, and sodium to specific amounts. Cut back on foods and beverages high in these components to amounts that fit within a healthy eating pattern.

SHOW SLIDE: *Limit Daily Sugar Intake*

SAY: Added Sugars: Limit added sugars to less than 10% of total calories daily. When sugars, syrups, or other caloric sweeteners are added to foods as they are processed or prepared, they are called "added sugars." Natural sugars in fruits, vegetables, and milk are not added sugars. Added sugars add calories without nutritional value. When a person's diet is high in added sugars, it may be hard for them to achieve a healthy eating pattern.

ASK: Does anyone know how much sugar Americans should limit in their daily meal plan?

DO: Allow participants to respond.

FEEDBACK:
Women should limit their daily intake of sugar to 6 teaspoons (25 grams). Men should limit their intake to 9 teaspoons (39 grams) per day. Many Americans consume on average 19.5 teaspoons (82 grams) every day.

SHOW SLIDE: *Saturated and Trans Fat*

SAY: Saturated & *Trans* Fats: Limit saturated fats (solid at room temperature) to less than 10% of total calories daily by replacing them with unsaturated fats (liquid at room temperature), and limit *trans* fats as low as possible. Meal patterns high in saturated and *trans* fats are associated with heart disease. Foods high in saturated fats include butter, whole milk, and meats that are not labeled lean. *Trans* fats are in processed foods such as desserts, frozen pizza, and coffee creamer.

SHOW SLIDE: *Activity: Calculating Fat Content and Percentage*

SAY: Locate the **Calculating Fat Content and Percentage** worksheet in your workbook. Using the Nutrition Facts label on the next page, calculate the fat and saturated fat calories and percentage of fat and saturated fat content for that product. The formulas are on the worksheet. Take about 5 minutes to complete the worksheet.

ACTIVITY: Calculating Fat Content and Percentage

Instructions: Using the Nutrition Facts label on the next page, calculate the fat calories and percentage of fat content for that product. The total time for this activity should be about 10 minutes.

DO: Allow participants 5 minutes to complete the calculations. Then call on volunteers to report their answers.

Calculating Fat Content and Percentage Answer Key

Instructions: Using the Nutrition Facts label on the next page, calculate the fat calories and percentage of fat content for this food product. The formulas are given. Note: 1 gram of fat contains 9 calories.

1. Calculate fat calories and percentage of fat content

   Multiply the grams of fat by 9 = the number of fat calories.

   Divide the number of fat calories by the total number of calories in the food item = % of fat content.

9 x **16** = **144** number of fat from calories

144 ÷ **240** = **0.6** % of fat content

2. Calculate saturated fat calories and percentage of saturated fat content

   Multiply the grams of saturated fat by 9 = the number of saturated fat calories in the food item.

   Divide the number of saturated fat calories in the food item by the total number of calories in the food item = % of saturated fat.

2 x 9 = **18** number of saturated fat from calories

18 ÷ **240** = **.075 or .08** % of saturated fat

Nutrition Facts

Serving Size 1 package
Servings Per Container 1

Amount Per Serving

Calories 240	Calories from Fat 140
	% Daily Value*
Total Fat 16g	**24%**
Saturated Fat 2g	**11%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 250mg	**10%**
Potassium 520mg	**15%**
Total Carbohydrate 23g	**8%**
Dietary Fiber 2g	**7%**
Sugars 1g	
Protein 3g	

Vitamin A 0%	•	Vitamin C 15%
Calcium 0%	•	Iron 4%
Vitamin E 8%	•	Thiamin 6%
Niacin 8%	•	Vitamin B_6 15%
Magnesium 6%	•	Zinc 2%

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

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300g	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

ASK: Would someone like to tell us what their answer is for the first calculation?

DO: Allow participants to respond. Continue with the other calculations, asking for volunteers to respond with their answers.

SHOW SLIDE: ***Limit Sodium***

SAY: Sodium: Limit less than 2,300 mg or 1 teaspoon daily (for adults and children 14 years and older). The average Americans consumes 50% more sodium than the recommended amount. Meals high in sodium are associated with high blood pressure and heart disease. USDA has developed a tip sheet that suggests ways to cut back on salt and sodium. The next handout in your workbook is **Salt and Sodium: 10 tips to help you cut back**. This handout may be a helpful sheet to send home to parents or post on the cafeteria bulletin boards.

DO: Allow participants to review the handout.

ASK: Does anyone have any questions about reducing sodium? What are some of the ways you and your family have reduced your sodium intake? What are some ways you have reduced sodium in the school nutrition program at your school?

DO: Allow participants to answer.

FEEDBACK:

- Eat fresh foods.
- Prepare foods from scratch.
- Eat plenty of vegetables and fruits (fresh, frozen, or canned).
- Choose fat-free or low-fat milk and yogurt.
- Choose fresh beef, pork, poultry, and seafood instead of those with added salt.
- Use fresh or dried herbs and seasonings.
- Purchase canned vegetables with no salt added.
- Rinse canned beans.
- Make gradual changes.
- Start children early with low or no salt added to foods.

SAY: All of those are great ideas. Thank you for sharing them.

SHOW SLIDE: ***DGAs Suggest Healthy Changes***

SAY: When it comes to improving food and beverage choices, small changes can add up to big benefits which is why the *DGAs* emphasize doable, healthy changes. Americans make so many choices every day about what to eat and drink. Each one is an opportunity to make small, healthy changes. Make daily choices to eat vegetables of different color. When snacking, keep fruits and vegetables around for an energizing fast snack. Select 100% whole grain breads, cereals, or pastas whenever possible. Make a pledge to switch your milk to low-fat or fat-free milk instead of 2% or whole milk. Do not forget to drink water. It is the only beverage you should super-size.

SHOW SLIDE: *Calorie Balance*

SAY: Americans are consuming too many calories, do not meet the recommended servings in each food group, and do not get adequate physical activity. Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide.

Calorie balance is the balance between calories taken in by consuming foods and beverages and the calories burned through metabolic processes and physical activity. The best way to determine whether an eating pattern is at the appropriate number of calories is to monitor body weight and adjust calorie intake and expenditure in physical activity.

Through the media, internet, and consumer outlets, Americans recognize there is an obesity epidemic. The total number of calories a person needs each day varies depending on several factors, including the person's age, sex, height, weight, and level of physical activity. In addition, a need to lose, maintain, or gain weight affects how many calories should be consumed. This topic relates back to our discussion of your 24-Hour Physical Activity Recall and 24-Hour Food Recall.

SHOW SLIDE: *Making Healthy Choices*

SAY: People make choices every day about what they consume and whether or not they will participate in physical activity. Creating healthy environments, especially in school settings, can be a role modeling for establishing lifelong healthy habits for the students. Displaying the *DGA* Key Recommendations and/or a MyPlate poster in the serving area and dining room is one way to help students learn how to make healthy food choices.

SHOW SLIDE: *Physical Activity Booster*

SAY: It is time for another physical activity to clear your mind. Stand up at your place and make sure you have plenty of room. Push your chair under the table. With your hands on the back of the chair, step back two or three steps. Bend slightly forward as you are going to do push-ups. Do 5–10 push-ups using your chair.

SHOW SLIDE: *MyPlate*

SAY: The next tool we will talk about for making healthy food choices is MyPlate. USDA created MyPlate as an "easy to understand" image that aims to empower individuals to make healthy decisions. The icon is a visual cue to remind us about healthy eating. It illustrates the following messages:

- Fill half your plate with fruits and vegetables.
- Consume half your grains as whole grains.
- Switch to low-fat and fat-free milk and yogurt.
- Choose a variety of proteins including seafood.
- Limit sodium, saturated fat, and added sugar.

ASK: Do these messages sound familiar?

FEEDBACK:
They can be found in the *Dietary Guidelines for Americans*.

SAY: MyPlate depicts the five food categories. We can use these tools to guide food choices that meet personal taste preferences and health goals. As the science of nutrition changes, so will the information developed by USDA. Know that if you want evidence-based, reliable information, you can refer to the USDA website.

The MyPlate icon is designed to remind Americans to make good choices; it is not intended to change consumer behavior alone. USDA also hopes that this delivery will be a better education tool for nutrition professionals.

SHOW SLIDE: ***Food Groups***

SAY: Let's look at the MyPlate icon in a little more detail. Turn to the **MyPlate** handout in your workbook. MyPlate illustrates the five food categories using a familiar mealtime visual, a place setting. The five food categories include grains, vegetables, fruits, dairy, and protein. It is a design that is easy to relate to and understand.

SHOW SLIDE: ***Make Half Your Grains Whole Grains***

SAY: The orange section on MyPlate represents the grain food group. Grains are either whole grains or refined grains. A healthy eating pattern include whole grains and limit the intake of refined grains. Whole grains are those that contain the entire kernel of grain. A refined grain has been milled, which removes the bran and germ. The number of servings for grains depends on a person's age and sex. The suggested serving size equivalence for grains is 1/2 cup cooked rice, 1 cup ready-to-eat cereal, a small tortilla, or 1 slice of bread. Check the ingredients label on the package for whole grain foods. Examples of what to look for include whole wheat flour, oatmeal, bulgur, whole wheat bread, whole wheat pasta, whole wheat tortillas, whole grain cereals, and brown rice. A list of whole grains and refined grain products and the recommended serving sizes can be found at http://www.choosemyplate.gov/grains.

Turn to the handout **Identifying Whole Grain Products** in your workbook to review how to identify a whole grain. I will give you a few minutes to review the handout. Notice the comments in the "What They Mean Column." Do not be fooled by words such as enriched, or even the word "wheat."

DO: Give participants a few minutes to review.

SAY: The next activity is about identifying whole grains.

SHOW SLIDE: ***Activity: Identifying Whole Grains***

ACTIVITY: Identifying Whole Grains

Instructions: Identify which of the grains are whole grains. Place a mark in the "Yes, It is a Whole Grain" column or "No, It is not a Whole Grain" column. This activity will take about 15 minutes.

SAY: The next activity in your workbook is **Identifying Whole Grains**. Fill out the worksheet using the handout **Grain Products** to help you identify the grains on the activity worksheet. You can work with a partner on this activity.

DO: Allow participants 10 minutes to fill out the worksheet. Discuss the answers to the activity.

SAY: Let's go through the answers to the **Identifying Whole Grains** activity.

Identifying Whole Grains Answer Key

Instructions: Identify which of these grains are whole grains. Place a mark in the "Yes, It is a Whole Grain" column if it is or in the "No, It is not a Whole Grain" column if it is not.

Grains	**Yes, It is a Whole Grain or No, It is not a Whole Grain**
Amaranth	**Yes**, amaranth is a whole grain.
Bulgur (cracked wheat)	**Yes**, bulgur (cracked wheat) is a whole grain.
Buckwheat groats	**Yes**, buckwheat groats are whole grain. They are usually cooked in a manner similar to cooking rice.
Brown rice	**Yes**, brown rice is whole grain. In some areas of the country, brown rice should be refrigerated to retard spoilage.
Couscous	**No**, couscous is not whole grain unless it is "whole wheat couscous."
Degerminated cornmeal	**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.
Graham flour	**Yes**, graham flour is whole grain. Graham flour is whole wheat flour that is slightly coarser than the regular whole wheat flour.
Grits	**No**, grits are not whole grain unless they are made from whole grain corn. Specialty mills may produce whole-grain grits.
Instant oatmeal	**Yes**, whole oats (old fashioned, quick, and instant) are whole grain. However, instant oatmeal is not encouraged because it is highly processed.
Long-grain white rice	**No**, white rice is not whole grain. White rice is produced by refining whole grain rice to remove the germ and bran.
Millet flakes	**Yes**, millet flakes is a whole grain.
Pearled (also called pearl) barley	**No**, pearled barley is not whole grain. "Pearled" indicates that the bran has been removed.

Quinoa	**Yes**, quinoa is a whole grain. It contains every amino acid and is rich in lysine. Quinoa is a good source of iron, magnesium, vitamin E, potassium, and fiber.
Rolled oats	**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.
Semolina	**No**, semolina is not whole grain. Semolina is durum wheat that is ground more coarsely than regular wheat flours.
Wheat flour	**No**, wheat flour is not whole grain. It is produced by refining whole wheat to remove the germ and bran.
Rye berries	**Yes**, rye berries are whole grain. Various grains with "berries" listed after the grain (wheat, oat, rye, etc.) are whole grains.
Whole-grain barley	**Yes**, whole grain barley is whole grain.
Whole wheat flour	**Yes**, whole wheat flour is a whole grain.
White whole wheat flour	**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.

SHOW SLIDE: ***Choose a Variety of Protein***

SAY: The purple section on MyPlate represents the protein foods category. This is the other food group that naturally provides fat to the diet. Look at the **Protein Equivalent** handout in your workbook. Most adults need only about 5 1/2 ounces per day and 8 ounces or more seafood per week. The suggested serving size equivalence is 3 oz cooked meat or poultry; 1 egg or 2 egg whites; 3 oz cooked fish or seafood; 1 tablespoon peanut butter, 2 tablespoons nuts or seeds, or 1/4 cup cooked beans or peas. Think of what is normally consumed in one day. For other ages, daily recommendations are specific to both gender and age. Low-fat food preparation methods are also recommended. Foods to choose more often include legumes, beans, and peas, which are naturally low in fat and high in protein and fiber. Nuts and seeds are also in this category. Portion size should be considered when consuming nuts and seeds due to their potential for a high amount of fat, sodium, and calories.

SHOW SLIDE: ***Variety of Vegetables***

SAY: The vegetable group, the green section of MyPlate, includes five vegetable subgroups—dark green, red/orange, starchy, other vegetables, and dry beans and peas. These include all fresh, frozen, canned, and dried options in cooked or raw forms including juices. The suggested serving size equivalence is 1 cup raw leafy greens, 1/2 cup cut-up vegetables, 1/2 cup cooked beans or peas, or 1/2 cup 100% vegetable juice.

Incorporating different choices into your diet can include adding broccoli to macaroni and cheese or baking lasagna with zucchini puree. The possibilities are endless for ways to prepare them; you just have to try new cooking methods. The amount of vegetables needed depends on your age, sex, and level of physical activity.

Instructor's Note: *Choose about 10 vegetables, some the participants will know and some they will not, to identify the subgroup where the vegetable can be found.*

SAY: Look at the next handout **Vegetable Subgroups** in your Participant's Workbook. Before we do an activity about the vegetable subgroups, let's look at some of the vegetables and identify the subgroup where they can be found.

SHOW SLIDE: ***Activity: Vegetable Subgroup Relay***

ACTIVITY: Vegetable Subgroup Relay

Instructions: Vegetables are organized into subgroups based on their nutrient content. The goal of this activity is to identify the vegetables and vegetable products with the vegetable subgroups. You will need two flip chart pages for each group of participants with the five subgroups labeled at the top of the page (refer to the slide Activity: Vegetable Subgroup Relay). The number of sets of charts (two per group) will depend on the number of participants in the training. Divide the group into evenly divided groups. For example, if there are 40 participants, divide the group into four groups of 10 participants per group. Have each group line up single file in front of their flip chart pages. Each group will receive cards with a picture of vegetables or vegetable products on it. These cards can be found in the toolkit. (**Note:** The pictures on the handout Vegetable Subgroup can be cut out and used for this activity.) Give the person at the front of the line the stack of vegetable cards and a roll of painter's tape for their group. When you say, "Go", the teams will race against each other to match the vegetable card with the vegetable subgroup. **This is a relay race.** The first person in line will take the top vegetable card, put a piece of tape at the top of the card, then hand the stack of cards to the next person in line, and place the card on the flip chart page under the appropriate vegetable subgroup; and go to the end of the line. Each person may have two or three (2-3) turns until all of the cards have been placed on the flip chart. When the teams finish, check each group's flip chart to see if the vegetable cards were placed in the correct subgroup.

Instructor's Note: *The number of participants in the training will determine how many groups and the number of participants in each group. If there are 23 participants in the training, divide them into two groups of 11 participants in one group and 12 participants in the other. You may not want to use the complete stack of vegetable/vegetable product cards.*

SAY: The next activity is looking at vegetables and vegetable products by subgroup. These

subgroups are used when planning school meals but are also a good guide for home use to ensure you are eating a variety of nutrients.

I am going to divide you into _____ groups. The person at the front of the line has the stack of vegetable cards and a roll of painter's tape for their group. When I say, "Go", the teams will race against each other to match the vegetable with the vegetable subgroup. This is a relay race. The first person in line will take the top vegetable card put a piece of painter's tape at the top of the card and place the card on the flip chart page under the appropriate vegetable subgroup. Then that person will hand the stack of cards and tape to the next person in line to place the next vegetable card on the flip chart and go to the end of the line. Each person may have two or three (2-3) turns until all of the cards have been placed on the flip chart.

DO: Start the activity. When the teams have finished, check each group's flip chart to see if the vegetable cards were placed in the correct subgroup.

Vegetable Subgroup Relay Answer Key

Instructions: Look at the vegetables in the first column and decide which subgroup that vegetable belongs and place an X in that column.

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

Vegetable Subgroup Relay Answer Key

Vegetables	Dark Green	Red/ Orange	Beans/Peas (Legumes)	Starchy	Other
Dark Green Leafy Lettuce	X				
Edamame			X		
Eggplant					X
Escarole Endive	X				
Fresh cowpeas, field peas, or black-eyed peas (not dry)				X	
Garbanzo Beans (chickpeas)			X		
Grape Leaves	X				
Great Northern Beans			X		
Green Cabbage					X
Green Onions					X
Green Peas, Dry			X		
Hubbard Squash		X			
Iceberg (Head) Lettuce					X
Jicama (Yam Bean)				X	
Kale	X				
Kidney Beans			X		
Kohlrabu					X
Lentils			X		
Lima Beans, Canned, Fresh or Frozen				X	
Lima Beans, Dry			X		
Mung Beans			X		
Mushrooms					X
Mustard Greens	X				
Navy Beans			X		
Okra					X
Onions					X
Parsley	X				
Parsnips				X	

Vegetable Subgroup Relay Answer Key

Vegetables	Dark Green	Red/ Orange	Beans/Peas (Legumes)	Starchy	Other
Pepperoncini					X
Pigeon Peas				X	
Pimentos		X			
Pink Beans			X		
Pinto Beans			X		
Plantains				X	
Poi				X	
Potato Products, White				X	
Pumpkin		X			
Radishes					X
Red Cabbage					X
Red/Orange Peppers		X			
Romaine Lettuce	X				
Rutabagas					X
Salsa		X			
Sauerkraut					X
Seaweed					X
Small Red Beans			X		
Soybeans, Dry, Mature			X		
Spinach	X				
Split Peas			X		
Sweet Potatoes		X			
Swiss Chard	X				
Taro (Malanga)				X	
Tomatillos					X
Tomatoes		X			
Tomato Products		X			
Turnips					X
Turnip Greens	X				

Vegetable Subgroup Relay Answer Key

Vegetables	Dark Green	Red/ Orange	Beans/Peas (Legumes)	Starchy	Other
Watercress	X				
Water Chestnuts				X	
White Beans			X		
Yautia (Tannier)				X	
Zucchini					X

Source: www.ChooseMyPlate.gov

ASK:

- Were there any surprises?
- Are there any vegetables you did not recognize?
- What are some ways you can incorporate new vegetables into your school nutrition program?
- Who would like to share an idea or something you are doing at your school?

DO: Allow participants to answer each question before asking the next one.

SAY: Your workbook includes the **Vegetable Subgroups** handout with vegetable images and the **Vegetable Subgroup Relay** worksheet with a comprehensive list of vegetables. You can use this worksheet to challenge your coworkers, friends, and family.

SHOW SLIDE: ***Focus on Fruits***

SAY: The red section on MyPlate represents the fruit group. From berries to smoothies and grapes to grape juice, options for adding fruit to your diet can be an easy, sweet treat! Preparation methods for fruits can be as simple as putting them in a bowl for a quick snack, incorporating them into yogurt, or blending them in a drink.

Recommendations for daily servings are age and gender specific. The suggested serving size equivalence is 1 medium whole fruit, 1/2 cup cut-up fruit, 1/2 cup 100% fruit juice, or 1/4 cup dried fruit. Included in this group are all fresh, frozen, canned, dried fruits, and fruit juices. When purchasing frozen and canned fruits, look for those lowest in added sugar. Be careful with juice and choose 100% juice. Fruit juices are higher in calories than fruit and should be purchased without added sugar. The same is true for dried fruit.

SHOW SLIDE: ***Dairy Group***

SAY: Dairy foods, represented by the blue circle on MyPlate, are important sources of calcium and are natural food sources of fat. The *Dietary Guidelines* suggest choosing fat-free or low-fat dairy products. Many Americans fail to meet daily calcium needs because they do not

consume enough calcium-rich foods. The *DGAs* recommend 3 cups of dairy each day for individuals 9 years old and older. For children 1 to 8 years of age, 2 cups of dairy each day are recommended. The suggested serving size equivalence for dairy products is 1 cup milk, 1 cup yogurt, or 1.5 oz of cheese. Watch out for ice cream and cream cheese that contain 8% calcium and sour cream that only contains 1% calcium. These are not included in the dairy food group due to their low calcium content. To see a list of products in the dairy group go to www.choosemyplate.gov/dairy.

SHOW SLIDE: *MyPlate: Interactive Website*

Instructor's Note: *Some places may not have access to the internet or wireless connection. Check connection before beginning the training.*

ASK: Ask how many have visited the MyPlate website. If they have not, go to https://www.choosemyplate.gov/MyPlate and show the participants some of the information and features that can be found. Encourage them to visit the website when they return home.

SAY: The MyPlate website is full of resources and information. It provides links to information for children, pregnant women, and weight loss. Information found within a variety of topics gives tips, educational material, and resources.

SHOW SLIDE: *Activity: 24-Hour Food Recall*

ACTIVITY: 24-Hour Food Recall

Instructions: Have the participants look at the **24-Hour Food Recall** worksheet. Ask them to look at the worksheet and decide if there are food groups missing from their eating pattern. Have them write down the foods needed to make sure they are consuming foods from all food groups.

SAY: For the next activity, we are going to consider our own food choices. Look at the **24-Hour Food Recall** worksheet that you completed earlier. Now look at the MyPlate icon.

ASK: Are you missing any food group categories? What can you do to personalize your plan, making sure all food groups are included?

DO: Allow participants to answer.

FEEDBACK:

- Include a rainbow of fruits and vegetables.
- Eat a piece of fruit for dessert.

SHOW SLIDE: *Nutrition Facts Label*

OBJECTIVE: Identify information on the Nutrition Facts label useful in making food choices consistent with the dietary advice of the *Dietary Guidelines for Americans* and MyPlate.

SAY: The last tool we will look at is the Nutrition Facts label, which can help guide food choices to meet personal taste and nutrition goals. This tool can also help you identify important nutrients and foods that are high in calories, sugar, fat, and sodium.

A Nutrition Facts label is on most of the foods and beverages you purchase in the grocery store. It can help you make healthy food choices once you understand how to read the label. If a food has a nutritional claim, such as "low cholesterol," "fat-free," or "free," the food must meet federal standards.

- If the food or beverage has "free" listed on the label, this means it has zero to almost no nutrients. An example is sodium-free. If the food claims to be sodium-free, it has less than 5 mg per serving.
- If the food or beverage has a claim of "very low" or "low," the food will have a little more of a nutrient, about 140 mg or less per serving of the nutrient.
- If the food or beverage has a claim of "reduced" or "less," the food will have 25% less of the nutrient than the common version.

The facts label can be found on commercially packaged foods and provide information about foods, such as serving sizes, ingredients, and nutritional content. It can help you determine how a food fits into your daily eating plan.

Here is a simple guide to use when looking at the nutrients on a Nutrition Facts label. Daily Values (DV) are the reference amount of each nutrient needed daily for a 2,000-calorie diet:

- A Daily Value of 5% or less is low for the nutrient.
- A Daily Value of 10 - 19% is a good source for the nutrient.
- A Daily Value of 20% or more is high for the nutrient.

The ingredients listed on the Nutrition Facts label are listed in descending order by weight. This means that the ingredient that weighs the most must be listed first, and the ingredient that weighs the least is listed last.

SHOW SLIDE: ***Helpful Tips on the Nutrition Facts Label***

SAY: Always check the serving size on the Nutrition Facts label. All of the information on the label is based on the serving size listed. Look for foods that have 10% or more of important nutrients and 5% or less of discretionary nutrients.

Understanding the Nutrition Facts Label

SAY: The Nutrition Facts label is a simple nutrition tool that provides information concerning the nutrition composition of food products and can assist you in selecting foods to meet the *DGAs*. Most of the information on the Nutrition Facts label adheres to the MyPlate food guidance system.

The Food and Drug Administration (FDA) has finalized the new Nutrition Facts label. The FDA Commissioner stated that the updated label includes improvements, so consumers can make more informed food choices. The new label replaces out-of-date serving sizes to better align with how much people really eat, and it will feature a fresh design to highlight key parts of the label, such as calories and serving sizes. Making informed food choices is an important step for anyone to reduce the risk of heart disease and obesity.

What does the new Nutrition Facts label look like? Look at the handout **Nutrition Facts Label Comparison** to review what the new label will look like compared to the current label, and the information changes for the new label. Notice the differences between the two labels. Let's look at the changes that are being made.

Changes to the Nutrition Facts Label

SHOW SLIDE: ***The New Nutrition Facts Label***

SAY: Refer to the handout **The New Nutrition Facts Label – Key Changes** to check out the changes on the new label.

The new label is divided into sections. Each section can help you choose healthier foods if you know how to read the label. Look at the image on the screen or the previous handout as we discuss the changes to the label and why the FDA made them. The changes being made are consistent with the *Dietary Guidelines*.

Serving Size Section: The font for the serving size, calories, and servings per container will be bold and a larger font size. The reason for the increase in size is to draw attention to these items. The serving sizes will be based on the amount of foods and beverages people eat, not what they should eat. For example, previously the serving size for ice cream was 1/2 cup; it will now be 2/3 cup. A serving of soda is changing from 8 oz to 12 oz. Servings per container will decrease based on the serving sizes people eat. These changes depict a more realistic idea of how people eat and help them realize how much they eat.

Calories Section: The amounts of total fat, saturated fat, and *trans* fat are still required. However, calories from fat is no longer required because it has been determined that the type of fat is more important than the amount.

Percent Daily Value Section: Manufacturers are required to state the actual amount of the percent Daily Value. The daily values for several nutrients like vitamin D, sodium, and dietary fiber are being updated based on new scientific research from the Institute of Medicine (IOM). The nutrients listed are maximum amounts for a 2,000-calorie diet, which means you should stay below those amounts if you are on a 2,000-calorie or less daily meal plan. These percentages can tell you if a food is high or low in a nutrient. If the percentage of the Daily Value is 5% or less, it is low in that nutrient. If the percentage of the Daily Value is 10-19%, the food is a good source of that nutrient. If the percentage of the Daily Value is 20% or higher, it is rich in that nutrient. These percentages can be good or bad depending on the nutrient.

Carbohydrate Section: Total sugars will remain on the label, and the amount of added sugars in grams will be included as well. This is to inform the consumer how much added sugar they are consuming. The recommendation is to limit added sugars to 10% of daily calories.

Nutrient Section: The list of nutrients required is being updated. Vitamin A and C are no longer required and vitamin D and potassium will be required. This change is because the nutritional concerns for these nutrients have changed. Manufacturers will also be required to declare the actual amounts of nutrients in the food and the percent Daily Value.

Footnote Section: This section changed to explain the percent Daily Value (%DV) better. It will not show the dietary recommendations. The footnote does not change from product to product; it will always be the same.

Quick Tips for Understanding a Food Label is the next handout in your workbook. Let's review the information.

DO: Allow participants a few minutes to review the handout.

SAY: The ingredients list is located at the bottom of the Nutrition Facts label. Ingredients must be listed in order of most to least in the food product. If sugar, or another term such as sucrose or high fructose corn syrup, is one of the first ingredients, that means a food is high in added sugar.

Labels can be both helpful and misleading. It is important to think through the information provided and use it to your advantage.

OBJECTIVE: Describe ways school nutrition programs may reflect appropriate aspects of the *Dietary Guidelines for Americans* that contribute to students' health and ability to learn.

SHOW SLIDE: ***Cafeteria Connection: Serving the Dietary Guidelines***

SAY: The school nutrition program presents unique opportunities to put information from the *Dietary Guidelines for Americans*, MyPlate, and the Nutrition Facts label into action. Increasing the opportunity for students to select whole grains, dark green and red/orange vegetables, a variety of fruit, low-fat entrées, and dairy products will provide the opportunity for students to begin leading a healthy lifestyle.

Cafeteria Connection: Serving the *Dietary Guidelines* offers ideas you can use in your cafeteria. Take a few minutes to review this handout.

ASK: Would anyone like to share what they are doing in their district?

DO: Accept all reasonable answers.

SAY: You have made some very good suggestions.

SHOW SLIDE: ***Activity: Lesson 2 Reflections***

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question, and I want you to (decide how you want the participants to answer). Some of the questions have several answers. (If it is a small group, let everyone have an opportunity to answer a question.)

DO: Depending on the amount of time, you can ask all of the questions or some of the questions. You may not want to wait for all of the answers. For example, questions 2 and 7 have many possible answers. You may only want to take four (4) answers.

Reflections

1. What are three tools that can be used to help you make good food choices?
   - *Dietary Guidelines for Americans*
   - MyPlate
   - Nutrition Facts label

2. What are some facts you know about the *Dietary Guidelines for Americans*?
   - They are reviewed and updated every 5 years based on current research.
   - They help Americans ages 2 and older make healthy food choices.
   - They promote a healthy lifestyle and reduce the risk of chronic diseases.
   - They encourage individuals to limit intake of sodium, added sugars, and saturated fat.
   - Choose nutrient-dense foods and beverages.
   - Be physically active.
   - Make half your plate fruits and vegetables.
   - Make at least half of your grains whole grains.
   - Limit sugary drinks and added sugars.
   - Limit saturated fats.
   - Avoid *trans* fats.

3. What is a nutrient-dense food?
   - A food that is high in nutrients and low in calories and sodium.

4. What is MyPlate?
   - It is an image of a plate to remind us to make healthy food choices.
   - It reminds us to fill half of our plate with fruits and vegetables.
   - It recommends a switch to low-fat or fat-free milk and yogurt.
   - It recommends choosing lean proteins.
   - It recommends consuming less sodium, saturated fat, and added sugar.

5. What are some facts you know about the Nutrition Facts label?
   - It is found on commercially packaged foods.
   - It provides nutrition information about food.
   - FDA has approved a new label.
   - Ingredients are listed in descending order by weight.

6. What are some ideas you learned from the Cafeteria Connection handout to encourage the students to follow the *Dietary Guidelines for Americans*?
   - Breakfast is a great time to encourage fruits and whole grain foods.
   - Serve whole grain, ready-to-eat, and cooked cereals with fruit and milk.
   - Offer toast made with 100% whole wheat bread with a serving of fresh fruit and milk.
   - Wrap brown rice, scrambled eggs, cheese, and salsa in whole wheat tortillas with fruit and milk.
   - Provide whole wheat bagels with flavored low-fat cream cheese and mixed fruit and milk.
   - Serve egg and cheese breakfast sandwiches on whole grain English muffins, fruit, and milk.
   - Add whole wheat flour and rolled oats to recipes for baked bread items. Serve with fruit and milk.
   - Include different colors, such as dark green and red/orange vegetables, and different types of vegetables, such as legumes and starchy vegetables, several time a week.
   - Create seasonal salad bar choices with a wide variety of deeply colored vegetables.
   - Put more 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 rice bowls by layering assorted vegetables and lean meat mixtures over brown rice.
   - Make wraps featuring brown rice and cooked beans/meat, salsa, cheese, and chopped tomato.
   - Slice apples, pears, and bananas to dip in yogurt.

- 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 and drained for a mixed fruit cup).

ASK: Does anyone have any questions about the *Dietary Guidelines*, MyPlate, or Nutrition Facts label?

DO: Allow participants to respond. Answer questions to the best of your ability. If you do not know the answer, tell the participants you do not know the answer and will need to research the topic and get back with them.

Nutrition 101

A Taste of Food and Fitness

Lesson 3:

The Energy Nutrients

The Energy Nutrients

SHOW SLIDE: ***Lesson 3: The Energy Nutrients***

SHOW SLIDE: ***The Energy Nutrients***

SAY: The dietary components that supply energy to the body are energy nutrients. The energy nutrients we will discuss are protein, carbohydrate, and fat. They are known as macronutrients because the body uses large quantities of them. Let's look at each nutrient and the importance it has on the body beginning with proteins.

OBJECTIVE: Identify essential energy nutrients, macronutrients, the major function each plays in a healthy body, and food sources of each.

SHOW SLIDE: ***Proteins***

SAY: Proteins are an essential nutrient provided in every cell of the body. They are made of amino acids. The *Dietary Guidelines* recommend consuming a variety of protein foods that are nutrient-dense. Proteins are found in both plants and animals. There are several subgroups including seafood; meats, poultry, eggs; nuts, seeds, soy products; and legumes (beans and peas).

SHOW SLIDE: ***Functions of Proteins***

SAY: Proteins are the building block of muscles, body tissues, and blood cells. The enzymes and hormones that regulate body functions contain protein. It is essential for growth and development, repairs and replaces body tissue, and enhances the immune system. The digestive system breaks down protein foods into tiny parts called amino acids. The amino acids are absorbed into the blood stream and used for muscles, tissues, enzymes, and other body needs. Protein digests slowly and helps provide a feeling of fullness. When the stomach has a feeling of fullness, or satiety, it signals the brain to stop eating.

SHOW SLIDE: ***Amino Acids***

SAY: There are 22 total amino acids that are critical for keeping the body's systems maintained. Thirteen of those amino acids are considered nonessential because they are naturally synthesized by the body. However, nine of them are called essential amino acids and must be consumed through food. Therefore, these nine amino acids deteriorate and the body does not store them.

SHOW SLIDE: ***Complete Proteins***

SAY: A complete protein contains all nine essential amino acids. These essential amino acids are present in animal products and some plant products.

SHOW SLIDE: ***Quinoa and Soy – Complete Proteins***

SAY: Quinoa and soy are plant-based products that are considered complete proteins.

SHOW SLIDE: ***Incomplete Proteins***

SAY: Incomplete protein is found in plant-based products. These proteins are lacking one or more of the essential amino acids. It is important to pair incomplete proteins with complementary incomplete proteins to obtain all nine essential amino acids.

SHOW SLIDE: ***Complementary Proteins***

SAY: Complementary proteins, grains, cereals, nuts, or seeds can be eaten with incomplete proteins, dried beans, dried peas, lentils, peanuts, or peanut butter to provide a complete protein. We will talk more about this when we discuss plant-based diets.

SHOW SLIDE: ***Protein Facts***

SAY: Most Americans eat plenty of protein-rich foods, primarily from animal sources. In many cases, protein intakes are higher than the recommended levels. Protein provides 4 calories per gram. The body only needs a certain amount of protein to maintain tissues and regulate body functions. This amount changes as we age, from .35 ounces per day for an infant to 5 ½ to 6 ½ ounces per day for adults. Look at the **Protein Daily Recommendations** handout in your workbook for a chart of protein needs by gender and age. One important exception is pregnant or lactating women. The recommended intake for them rises to 2 ½ ounces of protein a day.

Extra protein beyond what the body needs is converted into energy and may be stored as fat. The body can use protein for energy, but it is neither the most efficient source of energy nor the best use of protein in the body. The idea that eating large amounts of protein to build muscle is a myth. Protein repairs muscle, but only weight lifting and exercise builds muscle.

Another way to look at protein requirements is as a percentage of calories. The Dietary Reference Intake (DRI) recommends intake of 0.8 grams for each kilogram (2.2 pounds) of body weight. A minimum of 10 percent of total calories from protein should be set. However, athletes and the elderly may need more than the minimum for a healthy lifestyle.

OBJECTIVE: Identify food sources of carbohydrates and how the body uses them.

SHOW SLIDE: ***Carbohydrates***

SAY: Carbohydrates are an energy source for the body. They supply energy to the brain and nervous system, keep the digestive system in good shape, and supply calories for energy for physical activity. Carbohydrates include sugars (simple carbohydrates) and starch and fiber (complex carbohydrates).

SHOW SLIDE: *Functions of Carbohydrates*

SAY: Carbohydrate is the body's preferred source of energy. In fact, providing energy is carbohydrate's major role. Energy needs are determined by basic body processes.

- The heart, lungs, brain, and other organs demand constant energy.
- Rapidly growing children and teens require energy for growth and development.
- Carbohydrates also fuel the muscles. Some carbohydrate is stored in large muscles for a ready energy source.
- Active lifestyles increase energy needs.

SHOW SLIDE: *Sources of Carbohydrates*

SAY: Carbohydrates are sugars with a chemical structure that is composed of one or two molecules. Some sugars occur naturally in fruit, milk, some vegetables, and honey. Refined sugars from sugar beets, sugar cane, and corn are often added to foods during processing or preparation. The *Dietary Guidelines* recommend limiting added sugar to 10% of daily calories. The digestive system processes sugars by breaking the single connections between units. Sugars are easily digested, enter the blood stream quickly, and provide quick energy.

Sugars are a type of carbohydrate and a source of calories. Naturally occurring sugars (such as lactose in milk and fructose in fruits) contain vitamins, minerals, protein, and fiber. Foods with added sugar may or may not provide additional nutrients. Many of these foods are not rich sources of nutrients. Foods with added sugars may also provide nutrients of excess, such as sodium or fat. Therefore, it is important to choose food items that have high nutrient levels for the amount of calories consumed. Turn to the **Carbohydrates** handout in your workbook. Let's go through this together for a deeper understanding.

DO: Review the handout with participants.

SHOW SLIDE: *Activity: Sugar, Sugar Everywhere*

DO: Before class, write each of the five titles, Sugars, Food Sources with Naturally Occurring Sugars, Food Sources with Added Sugars, Beverages with Naturally Occurring Sugars, and Beverages with Added Sugars at the top of five separate flip chart pages.

SAY: Let's do an activity. This activity can help you see where natural sugars and added sugars can be found in foods.

ACTIVITY: Sugar, Sugar Everywhere

Instructions: Divide the class into 5 groups. Give each group 3 minutes to write the food items in the category assigned to them on a piece of flip chart paper. When 3 minutes are up, have each group rotate counter clockwise once. Ask them to review the list and add any food items they think should be added to the listed. Have each group return to their flip chart paper. Give each group about 1 minute to discuss their list. Ask a spokesperson to read their list of food items and the added food items. Do you agree or disagree with the choices? This activity focuses on the different types of sugars and how the body recognizes those sugars. This activity will take about 10 minutes.

SAY: Each flip chart has a category, Sugars, Food Sources with Naturally Occurring Sugars, Food Sources with Added Sugars, Beverages with Naturally Occurring Sugars, and Beverages with Added Sugars. Write the foods and beverages that contain the type of sugar in the category on the flip chart.

DO: Give participants about 3 minutes to make their lists.

SAY: Everyone rotate counter clockwise to your neighbor's flip chart. Take 1 minute and add to their list if you think something is missing. When you have finished, go back to your flip chart. In your group, discuss the additions that were made. I will give you a minute. Choose a spokesperson to report to the class.

DO: Give each group about 1 minute to report on their list. Call on a spokesperson from each table to report their list for each category. Accept all reasonable answers and add to the list from your Instructor's Manual if necessary. Some may mention unexpected sources such as ketchup, peanut butter, and other foods with a less perceivable sweet taste.

Have each group present their answers on their flip chart paper and any added foods.

ASK: What item or items were added that you did not expect?

SAY: Will a spokesperson from each group give their answers to the category they have beginning with group one?

FEEDBACK:

Sugars
Sugar, brown sugar, raw sugar, honey, maple syrup, corn syrup, powdered sugar, molasses, agave, alcohol sugars

Food Sources with Naturally Occurring Sugars
Fruit, plain yogurt, some vegetables, and grains

Food Sources with Added Sugars
Sweets, bakery items such as pies, cinnamon rolls, and cookies, flavored yogurts, ice cream, granola bars

Beverages with Naturally Occurring Sugars
Milk, fruit juices, and vegetable juices

Beverages with Added Sugars
Soft drinks, fruit drinks, sweet tea, lattes, many iced coffees, lemonade, sports drinks, chocolate milk, strawberry milk

SHOW SLIDE: *Sugars*

SAY: The body does not recognize the difference in the source of sugars. What it does recognize is the difference in the quality of the carbohydrate. Foods with added sugars can provide vitamins, minerals, and fiber.

The current food label does not distinguish the difference between naturally occurring or added sugars. They are listed together on the panel in the "Sugars" line on the current food label. However, the new food label includes added sugars.

SHOW SLIDE: *Common Added Sugars*

SAY: Sugars that are added to foods and beverages add calories, but do not add any nutritional value. Added sugars include syrups, sugar, brown sugar, corn syrup, and honey to name a few. Naturally occurring sugars in fruit and milk are not added sugars.

ASK: Does anyone add sugar to tea or coffee? How many teaspoons of sugar do you add to a cup of tea or coffee?

DO: Allow participants to respond.

SHOW SLIDE: *Calories in Sugar*

SAY: These are added sugars and calories. There are 4 calories per gram of carbohydrate. One teaspoon of white sugar is 4 grams. So how many calories are in 1 teaspoon of sugar? **(16 calories)**

No matter how you ingest sugar, it breaks down in the body to glucose. Glucose is the sugar used throughout the body.

Some glucose circulates to muscle. During exercise, it is easy for glucose to enter the cell and provide energy. If the muscle is at rest, the body has a helper, insulin, to help glucose enter the muscle cell. When we eat too many calories of **any** type for our energy needs, the excess calories are sent to fat cells and changed to fat for storage.

In the past, it was a common belief that eating a large amount of sugar caused a person to develop diabetes. Today we know sugar does not cause diabetes. The only health condition that sugar is proven to cause is dental caries, better known as cavities. Cavities are also caused by other sources of carbohydrate that start to digest in the mouth. An example of how sugar causes dental cavities begins when the mouth's bacteria feed on sugars in foods and create acids. The acids lead to tooth decay. Caramels (added sugars) or raisins (natural sugars) are two examples of sticky foods that can promote cavities. Saliva starts to digest starchy foods in the mouth, so breads and crackers can also lead to tooth decay.

SAY: Turn to the next handout in your workbook, **Added Sugars and Food Labels**. There is information about sugars on food labels.

DO: Allow participants time to review the handout.

SAY: Look for sources of sugars and other sweeteners; usually words that end in the letters "ose" are forms of sugar. For example, sucrose, lactose, maltose, fructose, glucose, and galactose are forms of sugar. We learned earlier that ingredients must be listed in order of most to least in the food product. The label on your handout has sugar listed twice. The two areas where sugars are found is in the ingredient list and the total grams of sugar in each portion.

SHOW SLIDE: *Sugar Intake in the United States*

SAY: Now that you know more about sugar, let's think about how much we consume. According to the U.S. Department of Agriculture dietary intake figures, the average American eats 66 pounds of sugar a year. This equates to 17 teaspoons of added sugars daily, roughly 272 calories. Much of this is added to foods, and much of it may be consumed in liquid calories.

SHOW SLIDE: *Activity: Beverage Calories*

ACTIVITY: Beverage Calories

Instructions: Using the **Beverage Comparison** handout, have the participants compare the different sizes for sports drink, dark cola, fruit juice, light colored cola, and water.

SAY: Let's look at a few beverages to see what we are drinking in calories. Turn in your workbook to the **Beverage Comparison** handout. How much sugar do you think is in a 20-ounce bottle of soft drink? At your table, figure out how many calories is in a 20-ounce bottle of soft drink.

DO: Allow participants to answer.

FEEDBACK:
A 20-ounce bottle could have as much as 17 teaspoons (1/3 cup) or 272 calories. (17 x 16 = 272)

DO: Using the **Beverage Comparison** handout, have the participants compare the different sizes for sports drink, dark cola, fruit juice, light color cola, and water.

SAY: All sugary calories have no nutritional value. What about sports drinks? They have a lot of sugar as well. On average, sports drinks have 12 teaspoons. That is equal to 192 calories. (12 x 16 = 192) Water is a much better choice.

ASK: How can you reduce the added sugar intake in your eating pattern?

DO: Accept all reasonable answers.

FEEDBACK:
- Drink milk, water, unsweetened tea or unsweetened coffee with meals.
- At home or school, cook from scratch and reduce the amount of sugar in the recipe.
- Eat fresh fruit for dessert.
- Unsweetened applesauce can be substituted for sugar in recipes (use equal amounts 1 cup applesauce equals 1 cup sugar).
- Use spices, such as ginger, cinnamon, or nutmeg, instead of sugar to enhance the flavor of food.
- Use naturally occurring sugars (i.e. honey)

SAY: The temperature of a food can influence how we perceive sweetness. Warmer foods seem sweeter than colder foods. You can test this at home. Let a small amount of vanilla ice cream thaw and warm to a pourable consistency. Then compare the sweetness to a small taste of the frozen ice cream. The warmer version will taste sweeter even though both have the same amount of sugar. This is one reason a cup of hot tea may taste sweeter than an equal amount of iced tea with the same amount of added sugar. A part of healthful eating includes enjoying added sugars in moderation.

Many people use non-nutritive sweeteners in place of added sugars for their choice in soft drinks and in baking. Using non-nutritive sweeteners is a personal choice. Research continues to contradict the safety of non-nutritive sweeteners. Look at the handout **Non-Nutritive Sweeteners** in the workbook for more information about these sweeteners. They are low in calorie.

ASK: Does anyone have any questions about simple carbohydrates?

DO: Answer all questions.

SHOW SLIDE: ***Starches***

SAY: Let's continue with starches. Starch is made of the same compounds as sugar, with many more carbon bonds. Because there are so many units connected together, starches take longer to digest and are absorbed more slowly than sugars. Thus, the energy from starches enters the blood stream more slowly and is a sustained energy source. Starches also contribute to satiety, or the sensation of feeling full.

Starches are found in grains, starchy vegetables, and legumes. Whole grains, vegetables, fruits, beans, and nuts also provide dietary fiber, another form of complex carbohydrate.

Dietary fiber helps keep the digestive tract running smoothly, helps us feel full, and reduces the risk of developing cardiovascular disease. According to the *Dietary Guidelines* dietary fiber is considered a "nutrient of public health concern" because low intakes are associated with potential healing risks. There are two types of dietary fiber: **soluble** and **insoluble**. Both are important for healthy digestion and preventing disease.

SHOW SLIDE: ***Dietary Fiber - Soluble***

SAY: Soluble fiber attracts water and turns to gel during digestion, slowing the digestive process. It also helps to maintain a healthy weight and lowers the risk of diabetes and heart disease. The American Heart Association recommends 25-30 grams of dietary fiber from food not supplements daily. Dietary fiber helps to lower cholesterol levels in the blood by binding with cholesterol compounds in the digestive tract. This bound cholesterol is not absorbed by the body. Whole grain-rich foods, fruits, vegetables, and legumes are examples of a good source of soluble fiber.

SHOW SLIDE: ***Dietary Fiber - Insoluble***

SAY: Insoluble fiber adds bulk to stool and helps food pass through the digestive tract more quickly. Wheat bran and whole grains are good sources of insoluble fiber. Other sources of insoluble fiber include seeds, nuts, fruit, and vegetable skins.

A person with diabetes needs to pay close attention to the amount of carbohydrates they consume. Excessive weight can increase the risk of developing Type 2 diabetes, high blood pressure, and some types of cancer. These are ways sugar impacts certain conditions, but is not the direct cause.

SHOW SLIDE: ***Carbohydrate Facts***

SAY: MyPlate suggests a variety of foods for carbohydrates each day. Six 1-ounce servings of grains, with at least half of those choices being whole grains, 2 cups of fruits, and 2 1/2 cups of vegetables daily are recommended to provide carbohydrates including fiber. These serving amounts are based on a 2,000-calorie daily eating pattern.

Most Americans eat carbohydrate-rich foods. In many cases, sugar intakes from soft drinks, candy, and desserts are higher than advised. Intakes of fiber-rich whole grains, fruits, and vegetables are often below the *DGA* recommendations. Carbohydrate is a critical nutrient. In

Lesson 1, we learned the brain requires a steady supply of fuel. Carbohydrate is the source of that fuel. There is no need to add glucose to the meal pattern, since the body makes glucose from carbohydrates, proteins, and fats.

OBJECTIVE: Describe how the different types of fats and oils influence health and chronic disease risks.

SAY: The last energy nutrient we will discuss is fat.

SHOW SLIDE: ***Functions of Fat***

SAY: Fat, or lipid, is the most concentrated source of energy. At 9 calories per gram, fat provides over twice the amount of calories of protein or carbohydrate. Fat has many important roles in the body.

Tiny amounts of fat are in every cell in our body. Fat cushions and protects our organs. Hormones that regulate body functions contain fat and it is essential to the development of a healthy brain and nervous system. It carries vitamins A, D, E, and K, and helps the body to absorb them. Fat is stored energy that the body relies upon when carbohydrate is not available.

Fat takes longer to digest than carbohydrate and helps promote satiety. An optimal amount of fat in the diet promotes health. However, eating too much fat can lead to overweight and related health concerns. Fats require special attention because they are calorie-rich or dense. If not used for body functions or energy needs, fat is stored as body fat.

SHOW SLIDE: ***Sources of Fat***

SAY: Fat occurs naturally in meats, fish, poultry, dairy products, nuts, seeds, and avocados. Fats, such as shortening, butter, lard, vegetable oils, and hydrogenated vegetable oils are added to foods in processing and preparation. Spreads, such as margarine and salad dressings, are other forms of added fat. Just as proteins are made up of building blocks called amino acids, combinations of different fatty acids produce fats and oils.

DO: Turn to the **Fats and Oils** handout in your workbook and follow along as we discuss fats and oils.

SHOW SLIDE: ***Fats and Oils***

SAY: **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 oils, such as coconut and palm oil, are also sources of SFAs.

Saturated fats are sometimes found naturally in foods and beverages. Saturated fat intake should be limited to less than 10 percent of daily calories. There is strong evidence that shows replacing saturated fats with unsaturated fats can reduce blood levels of total cholesterol and may reduce the risk of cardiovascular disease.

Scientists first connected diets high in saturated fats, from foods such as animal fats, to increased risk of heart disease in the 1950's and 1960's. At that time, finding a substitute for these fats in food production seemed like a good idea. That is why partially hydrogenated vegetable oils (e.g., margarine) were widely used in the food industry.

However, scientist have discovered that these engineered fats also increase risk of heart disease. This is because when hydrogen is added, it changes the shape of the fat compared to natural fats with the same amount of hydrogen. That change in shape is why they are called *trans* fat. *Trans* fat raise the risk of heart disease in more ways than saturated fatty acids. The *Dietary Guidelines for Americans* encourage keeping *trans* fat levels as low as possible.

Think about the basics of good nutrition from Lesson 1. Now think about the foods that have *trans* fat, foods such as crackers, cookies, snack foods, and fried foods. These foods often do not provide many vitamins, minerals, or fiber. In a healthful diet (as suggested by MyPlate), foods higher in *trans* fat are occasional foods, not mainstays of the diet.

SHOW SLIDE: *Comparing Saturated & Trans Fatty Acids*

SAY: *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 in food. Snack crackers, chips, cookies, and fried foods are often sources of *trans* fatty acids. *Trans* fats are also found naturally in some foods, whole milk and milk products and meats.

SHOW SLIDE: *Difference Between SFAs and TFAs*

SAY: Look at the slide. Unsaturated fats, such as monounsaturated fats and polyunsaturated fats, have one or more double bonds between carbon atoms. When hydrogen atoms are added it breaks the double bond to a single bond forming a saturated fat. The fat is saturated with hydrogen. *Trans* fatty acids are also made when hydrogen is added to vegetable oil causing the oil to become solid at room temperature. The difference between a saturated fat and a *trans* fat is the structure.

FDA has released a final determination that partially hydrogenated oils (PHOs) are not safe and manufacturers will have to remove them from processed foods. Removing the PHOs from foods could prevent heart attacks and related deaths each year. Food manufacturers can either remove the PHOs or reformulate the food product to remove them.

The *Dietary Guidelines* recommend limiting intake of *trans* fats to as low as possible. Increased intake of TFAs has been linked to an increased risk of cardiovascular disease.

SHOW SLIDE: *Monounsaturated and Polyunsaturated Fats*

SAY: 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. It is an unsaturated fat and liquid at room temperature. These fats should replace saturated fats to help reduce the risk of cardiovascular disease.

Polyunsaturated fats (PUFAs) are major fatty acids found in corn, soybean or safflower oil, and fish. It is an unsaturated fat and liquid at room temperature. These fats have been associated with reduced blood levels of total cholesterol and a reduced risk of cardiovascular disease.

Notice the letters on the slide are used to abbreviate the names of the different types of fats and oils: TFA, SFA, MUFA, and PUFA. You will see these letters on other slides.

SHOW SLIDE: *Dietary Cholesterol*

SAY: Cholesterol is a substance created and used by the body to form parts of many important hormones and is an essential component in the structure of cells. The body uses cholesterol for physiological and structural function, but makes more than enough for these purposes. Therefore, people do not need to consume cholesterol through foods.

Cholesterol is a fat-like compound in the blood that is made up of different types of lipoproteins. The liver makes all of the cholesterol your body needs. The *Dietary Guidelines* states that strong evidence has shown that lowering dietary cholesterol intake is associated with reduced risks of cardiovascular disease. Moderate evidence indicates that these eating patterns are associated with reduced risk of obesity.

Cholesterol in the diet is only found in animal-based foods. Consuming too much dietary cholesterol may raise blood cholesterol in some people and increase their risks of heart disease.

For most people, the total amount and type of fat in the diet changes their blood cholesterol levels. Saturated and *trans* fats increase blood cholesterol levels. Mono and polyunsaturated fats decrease blood cholesterol levels.

SHOW SLIDE: *Types of Blood Cholesterol*

SAY: There are three types of blood cholesterol: "good" (HDL) "bad" (LDL), and "very bad" (VLDL). The handout **Nutrition Nugget: Lipids in the Body** will help you to understand cholesterol better.

High-density lipoprotein (HDL) is known as the "good" type of blood cholesterol. Its main job is to pick up bad cholesterol from around the body and help move it back to the liver. High levels of HDL help protect against heart disease.

Low-density lipoprotein (LDL) is known as a "bad" type of blood cholesterol. Its job is to carry cholesterol, made in the liver, to and from cells. It contributes to fat buildups in arteries that narrow the arteries and raises the risk for heart attack. We need some LDL to be healthy, but high levels of LDL are a risk factor for heart disease.

Very low-density lipoprotein (VLDL) is considered a "very bad" type of blood cholesterol. It contains the highest amount of triglycerides. VLDL is converted to low-density lipoprotein (LDL) in the blood. Triglycerides are a dietary fat and the main form of fat in foods and the human body. They are made up of three units of fatty acids and one unit of glycerol.

SHOW SLIDE: ***Activity: My Lipids, They Wrote Me a Letter***

ACTIVITY: My Lipids, They Wrote Me a Letter

Instructions: You have different colors of index cards on your table. You will need a pink, yellow, blue, and green card. On the pink card write ***Trans* fat**. On the yellow card write **Saturated**. On the blue card write **Monounsaturated**. On the green card write **Polyunsaturated**. I will say a food and you hold up the card you think fits.

SAY:

Activity: My Lipids, They Wrote Me A Letter

Olive oil	**M**
Snack crackers made with hydrogenated soybean oil	**T**
Prime rib beef	**S**
Croissant made with butter	**S**
Salmon	**P**
Salad dressing made with canola oil	**M**
Toast with stick margarine	**T**
Potatoes fried in lard	**S**
Waffles made with corn oil	**P**
Peanut butter	**M**

DO: Call out the food and give participants time to choose which card to hold.

SHOW SLIDE: *Activity Answer Key*

SAY: Let's review the answers.

SHOW SLIDE: *Fat, the Dietary Guidelines, and MyPlate*

SAY: The *Dietary Guidelines* and food choices suggested in MyPlate are tools to help manage dietary fat. Here is a quick review of how these two resources work together. Let's review some the information gained from these tools.

- Keep total fat at 20 – 35% of total calories – ***Dietary Guidelines for Americans***.
- Keep saturated fats at 10% or less of total calories – ***Dietary Guidelines for Americans***. This is also required in school meal programs.
- Keep *trans* fats as low as possible – ***Dietary Guidelines for Americans***. Zero *trans* fats are required in school meals. The exception is *trans* fats that naturally occur in foods.
- Balance food groups and calories – **MyPlate**. Following the food groups and daily amounts is one-step to balance fats in a healthy eating style. It is important to note this first step focuses on total fat in the diet.
- Choose lean meats and low-fat or fat-free milk, cheese, and yogurt. These are two ways **MyPlate** suggests to lower saturated fat levels.
- Bake it, broil it, grill it, roast it, and limit snack foods – **MyPlate** suggests limiting *trans* fat. This is also required in school meal programs.

- Choose fish, nuts, seeds, and vegetable oils more often for mono and polyunsaturated fats – **MyPlate**. It is important to use these foods in place of other sources of fat and in moderate portions. We need to keep the first guideline about limiting total fat in mind.

SAY: The amount of total fat, saturated fat, and *trans* fat must be listed on the food label. Many food products also list the amount of mono- and polyunsaturated fats, but this is not required. It is important to pay attention to serving size on the label. Why is it important? The next handout in your workbook **Total Fat** will help explain why. Let's review the handout.

Food labels must follow guidelines. If a food has less than 1/2 a gram of *trans* fat, or 0.5 grams, in a serving, the label value is zero (0). Therefore, a food with 1/3 of a gram of *trans* fat, or 0.3 grams per serving, will list zero (0) grams of *trans* fat per serving on the label. If a person eats five servings of the food, 0.3 grams times five (5) equals 1.5 grams, or about 1 1/2 pats of butter. Yet, because the single serving size lists 0 grams, a person may think the five portions of the food do not have any *trans* fat, and that would not be true.

The Food and Drug Administration (FDA) administers the regulations for the Nutrition Facts label. FDA does not have a daily value set for *trans* fat, so only the gram amount appears on the label. The *Dietary Guidelines for Americans* suggest keeping *trans* fat intake as low as possible.

The ingredient panel is another place to look for clues about the types of fat in a food.

ASK: When looking at the Nutrition Facts label, what words tell you the food contains fat?

DO: Accept all reasonable answers and clarify as needed.

FEEDBACK:

- Flaxseed
- Walnuts
- Canola
- Soybean
- Wheat germ
- Nuts
- Seeds
- Fish

OBJECTIVE: Describe how school meals are planned to balance nutrients and contribute to students' health.

SHOW SLIDE: ***The Lowdown on Low-Fat Recipes***

SAY: The next handout in your workbook is **Lowdown on Low-Fat Recipes**. It suggests ways to lower the fat in baked product recipes. Oils can be used in food preparation to change the type of fats in a product. There are other ways to prepare foods with lower fat content. This handout covers some tips for modifying recipes for baked products.

ASK: What are some other ways to reduce fat?

DO: Accept all reasonable answers and clarify as needed.

FEEDBACK:

- Substitute liquid oils
- Decrease amount of solid fat
- Use fruit purees
- Change cooking method – bake, broil, roast, and grill
- Blotting or skimming the fat
- Trimming the fat off the meat before cooking

SAY: Fat plays important roles in recipes. Besides carrying flavors, fat provides texture and moisture. The **Cafeteria Connection: Limits on Lipids** handout in your workbook will also give you more information on ways to limit fats in your school nutrition program. It is important to make changes and test the recipes so new ones are standardized to produce a consistent, high-quality product.

Good nutrition involves balancing calories eaten and calories used for body functions and physical activity. It also requires a balance between sources of energy. The body saves and stores any extra calories beyond what it needs from protein, carbohydrate, or fat.

Think about what roles protein, carbohydrate, and fat play in the body. Muscles made of protein burn carbohydrate for energy when they work. When muscles work for an extended period, they deplete carbohydrate stores and use fat for energy. The last handout for this lesson **Fast Facts About Energy Nutrients** gives a nice summary about the three major energy nutrients. Take time to review these.

DO: Give participants time to review the handout.

SHOW SLIDE: ***Calories Count and Serving Size Matters***

SAY: In Lesson 2, we discovered how to find the serving size, number of servings per package, and the nutrition information based on that serving size on the Nutrition Facts label. Labels also provide information about protein, carbohydrate, sugars, fiber, and fats. The Nutrition Facts label combined with MyPlate and the *Dietary Guidelines* can help guide healthful food choices.

SHOW SLIDE: ***Nutrition Facts Label***

SAY: Let's look at the sample label on the screen. Multiply each of the energy nutrients protein, carbohydrate, and fat with the number of calories per gram to see where the calories are coming from. At your table, discuss whether that is a healthy source of calories.

DO: Allow 2 minutes for discussion about labels.

ASK: What are your answers? Are these a healthy source of calories?

FEEDBACK:

- Protein has 12 calories or 5%.
- Carbohydrates have 148 calories.
- Fat has 72 calories or 30%. The fat is not a healthy source of calories.
- Fiber is 4 grams. A good source of fiber, but has a lot of added sugar.
- The protein is a healthy source of calories.
- The carbohydrates are more sugar than fiber.

SAY: School nutrition programs implement federal guidelines and serving sizes in meal service. This practice helps provide students the opportunity to select a healthy meal. Knowing what a standard serving looks like can help you notice when portion sizes are large in other food settings. Use these skills outside of the cafeteria to decide how many servings are in a portion. Often restaurant portions are much larger than standard servings or serving sizes listed on packages of food.

School meals are packed with foods rich in vitamins and minerals, protein, fiber, carbohydrates, and calories from a variety of sources. School meals can encourage lifelong healthy eating habits in children.

SHOW SLIDE: ***Activity: Lesson 3 Reflections***

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question, and I want you to (whatever you decide how you want the participants to answering). Some of the questions have several answers. (If it is a small group, let everyone have an opportunity to answer a question.)

Reflections

1. What are the energy nutrients?
   - The energy nutrients are protein, carbohydrate, and fat. They supply energy to the body.

2. What is a complete protein?
   - A source of food that contains all nine essential amino acids necessary for a person's daily dietary needs.

3. What are complementary proteins? Give an example.
   - Complementary proteins are two sources of protein combined at the same time or at difference times to get the nine essential amino acids necessary in a person's daily diet. An example is whole wheat bread and peanut butter.

4. What are the types of carbohydrates?
   - Sugars, starches, and dietary fiber

5. What are some important roles fat plays in the body?
   - It cushions and protects the organs.
   - It helps regulate body functions.
   - It takes longer to digest giving a sense of fullness or satiety.
   - Helps to metabolize vitamins.

6. What are SFAs?
   - Saturated fatty acids – solid fat at room temperature

7. What are PUFAs?
   - Polyunsaturated fatty acids – liquid at room temperature

8. What are the three types of dietary cholesterol?
   - HDL – High-density lipoprotein "Good"
   - LDL – Low-density lipoprotein "Bad"
   - VLDL – Very low-density lipoprotein "Very Bad"

9. A company has a food product that contains 0.3 grams of *trans* fat. Is the company required to list 0.3 grams of *trans* fat on the Nutrition Facts label?
   - No. The company can list the product as having 0 grams of *trans* fat.

SAY: This concludes Lesson 3. Does anyone have any questions?

DO: Allow participants to respond. Answer questions to the best of your ability. If you do not know the answer, tell the participants you do not know the answer and will need to research the topic and get back with them.

SHOW SLIDE: *Physical Activity Booster*

SAY: Before we move on to Lesson 4, let's stop and take a physical activity break. We are going to march in place for two (2) minutes. I want you to move your arms as you march or if you feel like dancing or moving your whole body while you march that is also good movement of the body. It will get you heart rate up a little more.

A Taste of Food and Fitness

Lesson 4:

Vitamins and Minerals

Vitamins and Minerals

SHOW SLIDE: ***Lesson 4: Vitamins and Minerals***

SAY: In Lesson 3, we talked about the energy nutrients proteins, carbohydrates, and fats. These are known as the macronutrients, nutrients your body needs in large quantities. In this lesson we are going to discuss vitamins and minerals, known as micronutrients. Your body needs these nutrients in small amounts.

OBJECTIVE: Identify essential vitamins and minerals, micronutrients, the major function each plays in a healthy body, and food sources of each.

SHOW SLIDE: ***Vitamins***

SAY: There are two types of vitamins–fat-soluble and water-soluble. Fat-soluble vitamins (A, D, E, and K) are needed in small amounts and not every day. The body stores unused fat-soluble vitamins in the liver and fat tissue. These can be toxic in mega doses. Fat-soluble vitamins are not destroyed in the cooking process.

Water-soluble vitamins are needed daily. Excess amounts of these vitamins are excreted in the urine. These vitamins are easily destroyed in the cooking and storing process.

We will continue our discussion on vitamins and minerals exploring the fat-soluble vitamins first and then the water-soluble vitamins. Refer to the handout **Vitamins** as we discuss the fat-soluble and water-soluble vitamins.

SHOW SLIDE: ***Fat-soluble: Vitamin A***

OBJECTIVE: List the fat-soluble vitamins.

SAY: Vitamin A, a fat-soluble vitamin, keeps skin and eyes healthy and supports night vision. There are nearly 50 known functions of vitamin A.

Vitamin A is found in two forms, retinol and beta-carotene. Animal foods such as milk, egg yolks, and liver provide retinol, a type of pre-formed vitamin A. The body easily absorbs and uses retinol.

Plant foods provide beta-carotene, the inactive form of vitamin A that the body converts to retinol. Dark green and red/orange vegetables such as broccoli, and carrots, sweet potatoes, and mangos are sources of beta-carotene. The recommended dietary allowance (RDA) varies depending on age and reproductive status of the person.

Taking mega doses of retinol can cause dizziness, nausea, vomiting, stomach discomfort, headaches, and the skin to appear yellow or orange.

SHOW SLIDE: *Fat-soluble: Vitamin D*

SAY: Vitamin D is called the sunshine vitamin. Spending about 5–10 minutes in the sunlight each day will stimulate a hormone in uncovered skin to produce vitamin D. Vitamin D helps the body to increase calcium absorption in the small intestine and contributes to strong bones and teeth. It regulates blood calcium and phosphorus levels to maintain bone health. Food sources include fortified milk, fatty fish, liver, and eggs.

SHOW SLIDE: *Fat-soluble: Vitamin E*

SAY: Vitamin E is an antioxidant that protects red blood cells as they transport oxygen from the lungs to other tissues. It also helps white blood cells protect the body from chronic diseases.

Food sources include vegetable oils, wheat germ, whole grains, and dark green vegetables, sunflower seeds and oil, and hazelnuts.

SHOW SLIDE: *Fat-soluble: Vitamin K*

SAY: You may have heard that vitamin K is considered nature's band aid. The reason is because 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 vegetables, vegetable oils, cabbage, black-eyed peas, kiwi, soybeans, and cauliflower.

That is the last fat-soluble vitamin. Remember, the body stores fat-soluble vitamins but excretes excess water-soluble vitamins. Taking mega doses of fat-soluble vitamins can be dangerous to your health. Taking mega doses of water-soluble vitamins is a waste of money because the excess is excreted.

ASK: Does anyone have any question about fat-soluble vitamins?

DO: Allow participants to respond. Answer all questions to the best of your ability.

OBJECTIVE: List the water-soluble vitamins.

SHOW SLIDE: *Water-soluble Vitamins*

SAY: The next topic we will discuss is water-soluble vitamins.

All of the B vitamins work with a coenzyme. A coenzyme is a molecule that works with an enzyme to activate it. B vitamins are part of one or more coenzymes that help the body use and make energy from the food you eat. For example, the energy nutrients give the body energy and the B vitamins help the body use the energy. Each B vitamin has their own special

function. They also work with enzymes to create new cells. There are eight B vitamins thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, B12, and folate.

SHOW SLIDE: *Water-soluble: Thiamin*

SAY: Thiamin is responsible for glucose metabolism and other reactions. It also helps the body use energy and keeps the nervous system healthy. It is part of the coenzyme that actively participates in energy metabolism. Food sources include whole and enriched grains, pork, salmon, organ meats, eggs, yeast, legumes, and dark green vegetables.

SHOW SLIDE: *Water-soluble: Riboflavin*

SAY: Riboflavin is essential to convert protein, carbohydrate, and fat to energy. It is part of the coenzyme that actively participates in energy metabolism. Riboflavin contributes to healthy skin and vision. Ultraviolet light and irradiation destroy riboflavin. This is why milk is sold in cardboard or opaque containers. Food sources include milk, cheese, whole and enriched grains, organ meats, eggs, and dark green vegetables.

SHOW SLIDE: *Water-soluble: Niacin*

SAY: Niacin is another B vitamin that helps release energy from foods. Like thiamin and riboflavin, niacin is part of the coenzyme that actively participates in energy metabolism. There is good evidence that niacin may reduce atherosclerosis, or hardening of the arteries. Food sources include pork, beef, whole and enriched grains, peanuts, fish, and liver.

SHOW SLIDE: *Water-soluble: Folate*

SAY: Folate is a coenzyme that is needed for new cell development. This B vitamin helps prevent birth defects of the developing brain and spine. Food sources include dark green vegetables, citrus fruits, strawberries, dried beans, enriched grains, fortified cereals, liver, and wheat germ.

SHOW SLIDE: *Water-soluble: B12*

SAY: Vitamin B12 aids in nerve function, helps the body make new cells, and is key to folate metabolism. Unlike the other B vitamins, the body stores it in large amounts. Food sources include meat, liver, fortified foods, poultry, fish, eggs, fortified soy products, and milk. It is a nutrient of concern in strict vegetarian diets. Taking too much vitamin B12 from supplements can be difficult for the body to excrete and may be harmful to a person's health.

SHOW SLIDE: *Water-soluble: Pyridoxine*

SAY: Pyridoxine (B6) helps the body turn food into energy and is essential in the body's function of proteins, carbohydrates, and fats. It supports more than 100 enzyme reactions in body tissues. These enzymes support protein and carbohydrate metabolism, blood cell and neurotransmitter formation. It helps the development of the brain, nerves, and skin. Mega doses of vitamin B6 may contribute to irreversible nerve damage. Food sources include cereals, beans, vegetables, liver, meat, and eggs. This vitamin must be obtained from food since the body cannot make it.

SHOW SLIDE: *Water-soluble: Biotin*

SAY: Biotin is a coenzyme component essential for the metabolism of carbohydrate, fat, and amino acids. It helps support and maintain a healthy nervous system. Food sources include organ meats, barley, brewer's yeast, fortified cereals, corn, egg yolks, milk, soy, wheat bran, avocados, broccoli, cauliflower, cheeses, chicken, fish, legumes, mushrooms, nuts, pork, potatoes, and spinach.

SHOW SLIDE: ***Water-soluble: Pantothenic Acid***

SAY: Pantothenic acid helps the body convert protein, carbohydrate, and fat to energy. Food sources include avocados, brewer's yeast, broccoli, corn, cauliflower, egg yolks, kale, legumes, lentils, tomatoes, organ meats, turkey, duck, chicken, sweet potatoes, sunflower seeds, whole grain breads and cereals, wheat germ, and salmon.

SHOW SLIDE: ***Water-soluble: Vitamin C***

SAY: Vitamin C helps promote a healthy immune system and keeps gums and blood vessels healthy. Vitamin C also plays a role in body structure. Collagen (part of bones and ligaments) contains vitamin C. These are only two of the important functions of vitamin C.

Citrus fruits, including oranges, grapefruit, lemons, and limes, provide vitamin C. Tomatoes, peppers, potatoes, strawberries, cantaloupe, and broccoli are other tasty sources. Fruits and vegetables are naturally rich sources of vitamin C. The pure vitamin is often added to breakfast cereals and other fortified foods and fruit juices.

Nutrition is a science. Vitamins were discovered just over 100 years ago. Scientists are studying fruits and vegetables for new compounds that may promote health. For example, the parts of plants that give fruits and vegetables color may have unique health benefits. New, exciting discoveries give us more reasons to get our vitamins and minerals from foods. Supplements do not contain the many different compounds found in foods. Nature packs food with more nutrition than any man-made pill. A balanced eating pattern provides most people with all the nutrients needed for good health. A supplement may be needed for a specific health concern in addition to, not instead of, a well-chosen meal plan. For example, an iron supplement in addition to eating iron-rich foods may be prescribed to treat anemia.

Instructor's Note: *If you notice the participants are getting fidgety, do the next physical activity. If they are okay, continue with the lesson.*

SHOW SLIDE: ***Physical Activity Booster***

SAY: I think you need a little pick-me-up. Let's do a short physical activity. Do you remember the nursery rhyme Head, Shoulders, Knees, and Toes? This next activity is similar to this nursery rhyme. Everyone stand up, give yourself some room to bend over. As I say the words, you put both of your hands on the body parts.

Head, shoulders, knees, and toes

Knees, and toes

Head, shoulders, knees, and toes

Knees, and toes

Add eyes, ears, mouth, and nose

Head, shoulders, knees, and toes

Knees, and toes

Head, shoulders, knees, and toes

Knees, and toes

Head, shoulders, knees, and toes

Knees, and toes

Add hands, fingers, arms, and legs (**DO:** raise your hands, wiggle your fingers, raise your arms, and shake a leg)

Head, shoulders, knees, and toes

Knees, and toes

That was fun. Please take your seats and we will continue our discussion with minerals.

SHOW SLIDE: ***Minerals***

OBJECTIVE: Identify the major and trace minerals.

SAY: Look at the next handout **Minerals** while we discuss the major and trace minerals.

Minerals are also important for our body to stay healthy. They are considered micronutrients when compared to proteins, carbohydrates, and fats. Minerals are divided into two groups, major and trace. Major minerals are present in the body in larger quantities; however, both groups are equally important for body functions. The amount of major and trace minerals needed by the body may differ; however, depending on the person, it is important to remember the biological importance of both minerals.

Let's discuss these minerals and a few of the concerns associated with them.

SHOW SLIDE: ***Major Minerals: Calcium***

SAY: The body needs calcium for more than strong bones. Calcium is needed for normal blood pressure and for muscle contraction, including every time the heart beats. It is needed for nerves to send impulses, and for blood to clot. Though the body needs smaller amounts of calcium for these functions compared to the larger needs for the bones, these needs are critical. They are so critical that the body will take calcium from the bones to make up for calcium missing in the daily eating pattern. The body needs help from vitamins D and K, magnesium, and phosphorous to absorb calcium. Bones provide the body with structure and a storage of calcium when intakes are low. An adequate amount of calcium and vitamin D along with regular weight-bearing physical activity are essential for keeping bones healthy throughout our lifespan.

Many Americans do not eat or drink enough calcium-rich foods or beverages each day. Do you know why?

DO: Wait for responses. If there are no responses, continue.

SAY: Think about food choices 30–40 years ago versus today. Many families regularly drank milk with meals, but now other beverages such as soft drinks, fruit punches, and flavored teas often fill glasses at mealtime.

Sadly, the symptoms of long-term, low-calcium intake may not show until a person is older and has osteoporosis, also known as brittle bone disease. That is why experts suggest eating plenty of calcium-rich foods and participating in daily weight-bearing exercise. These habits are investments in good health today and in future bone health.

Milk, cheese, and yogurt are naturally rich in calcium. MyPlate groups these calcium-rich foods together in the Dairy group. Consume 3 cups of milk daily to meet calcium needs.

A cup of yogurt or 1 1/2 ounces of cheese provides the amount of calcium equal to 1 cup of milk. Dried beans, fish with soft bones, broccoli, and dark green vegetables, such as kale, also provide calcium. These non-dairy foods frequently provide less calcium per serving than milk or yogurt. Most people do not eat large enough portions of canned fish, broccoli, or dried beans every day to supply calcium needs. Some foods provide calcium but also contain oxalate that prevents the body from absorbing that calcium. Examples of foods that contain oxalate are spinach, chard, berries, chocolate, and tea. Calcium and iron counteract each other, but vitamin C helps to absorb calcium.

SHOW SLIDE: ***Major Minerals: Phosphorus***

SAY: Phosphorus is found combined with calcium in the bones and teeth. It is essential for tissue growth and renewal, and assists many enzymes and vitamins in extracting energy from nutrients. Phosphorus carries, stores, and releases energy in the metabolism of energy nutrients. Food sources include cottage cheese, milk, navy beans (cooked), salmon (canned), and sirloin steak.

SHOW SLIDE: ***Major Minerals: Magnesium***

SAY: Magnesium contributes to bone development. It is also crucial to many other cell functions including metabolizing potassium, calcium, and vitamin D. Magnesium aids in the process of releasing energy into cells. It works with calcium by relaxing a muscle after calcium has caused it to contract. Food sources include enriched whole grains, black beans, black-eyed peas, avocados, and soymilk.

SHOW SLIDE: ***Major Minerals: Sodium***

SAY: Sodium also known as table salt is a combination of two minerals sodium and chloride. Sodium helps transmit nerve impulses and helps with muscle contraction and relaxation. It helps to maintain the right balance of body fluids. The kidneys control the amount of sodium in the body. If the body has too much sodium and the kidneys cannot excrete it, the sodium builds up in the blood causing high blood pressure. Most Americans consume more sodium than is recommended. The *Dietary Guidelines* recommend that adults eat one teaspoon or less of salt per day. Food sources of sodium include processed and prepared foods. Foods that naturally contain sodium include all vegetables and dairy products, meats, and shellfish.

SHOW SLIDE: ***Major Minerals: Potassium***

SAY: Potassium plays a major role in maintaining fluid, electrolyte balance, and cell integrity. It is critical to maintaining a rhythmic heartbeat and optimal blood pressure.

Potassium is present in living cells; therefore, fresh foods contain more potassium than processed foods that normally do not leave cells intact. Food sources include apricots, avocados, bananas, beets, potatoes, pumpkins, tomatoes, and lima beans.

SHOW SLIDE: *Major Minerals: Chloride*

SAY: Chloride plays an important role in the blood. It works with sodium to help maintain crucial fluid balances. Chloride is an acid and maintains the strong acidity in the stomach necessary to digest protein. It also helps to maintain proper blood volume, blood pressure, and the pH of the body fluids. A common food source includes salt, both added and naturally occurring in foods like tomatoes, lettuce, celery, and rye.

SHOW SLIDE: *Major Minerals: Sulfate*

SAY: Sulfate is oxidized sulfur as it occurs in food and water. It is important in synthesizing sulfur-containing amino acids to help strands of protein maintain their shape. It is used to make protein for cells and tissues. Food sources include eggs, meat, poultry, fish, legumes and dried beans, and dairy.

SHOW SLIDE: *Physical Activity Booster*

SAY: Before we focus on the trace minerals, it is time to do a quick physical activity. In this physical activity, you will pick apples and strawberries. Stand up, away from the desk or table where you are sitting. Push your chair under the table, out of the way, to give yourself some room to bend. With your right arm, reach up over your head for the ceiling. Feel the stretch in your side as you try to reach the apple at the top of the tree. Then, bending forward at the waist, try to touch the floor so you can pick some luscious red strawberries.

Now, do the same thing on the left side. With your left arm, reach for the ceiling, feeling the stretch in your left side. Then, bending at the waist, try to touch the floor.

Do this exercise three times on each side.

DO: Have everyone return to their seats.

SHOW SLIDE: *Trace Minerals: Iodine*

SAY: The next mineral is iodine. Iodine is found naturally in the body. It is a critical nutrient because it allows the cells to convert food to energy, and is needed in the thyroid gland to produce thyroid hormones. These hormones control the body's metabolism. The main food source of iodine is iodized salt and seafood such as cod, sea bass, haddock, and perch. Kelp and dairy products are other food sources.

SHOW SLIDE: *Trace Minerals: Iron*

SAY: Iron is found in animal and plant foods. It is part of every red blood cell and is considered the body's gold. The iron in red blood cells moves oxygen around the body. The muscles, tissues, brain, and nervous system require oxygen. The enzyme systems that control bodily processes also contain iron.

Iron deficiency, anemia, is a common nutrition concern in the United States. Blood tests can detect low iron levels. Iron deficiency can occur in females during the years of menstruation. To meet iron needs, it is best to rely on foods because iron from supplements is not absorbed as well as iron from food.

Iron also helps the brain function. Students who are anemic (iron deficient) have trouble concentrating, solving problems, and performing well in school. A healthy immune system needs iron. Students with low iron status may also miss more school due to illness.

There are two types of iron, heme and non-heme. Heme iron is derived from hemoglobin, the protein in red blood cells that delivers oxygen to cells. Animal foods provide heme iron in the diet. Our bodies absorb and use heme iron best. Lean red meat, liver, and dark poultry meat are some sources of heme iron.

Plants such as whole grains, dried beans, lentils, and dark green vegetables provide non-heme iron. Our bodies absorb and use non-heme iron better when it is eaten with a meat source of iron and/or a vitamin C-rich food. Meat with chili beans and orange segments on spinach salad are two tasty combinations that help the body make the most of the iron in food.

SHOW SLIDE: *Trace Minerals: Zinc*

SAY: Zinc plays a critical role in immune function, wound healing, growth, and blood clotting. Food sources include lean meats, eggs, seafood, nuts, legumes, soy products, whole grains, and wheat germ.

SHOW SLIDE: *Trace Minerals: Selenium*

SAY: Selenium is an antioxidant that helps to fight damaging particles in the body known as free radicals. Food sources include Brazil nuts, yellowfin tuna, halibut, sardines, grass-fed beef, turkey, beef liver, and chicken.

SHOW SLIDE: *Trace Minerals: Fluoride*

SAY: Fluoride is found naturally in the seafood and water we consume. Other sources of fluoride include tea, gelatin, fluoridated and unfluoridated water, fluoridated toothpastes, and some dietary supplements. Fluoride occurs naturally in the body as calcium fluoride and is mostly found in the bones and teeth. Fluoride helps to reduce tooth decay.

SHOW SLIDE: *Trace Minerals: Chromium*

SAY: Chromium is an essential mineral that helps in the metabolism of carbohydrate and fat. It may help maintain glucose homeostasis by activating the hormone insulin and improving cell absorption of glucose. Chromium is found in a variety of food sources including meat, unrefined grains, and vegetable oils.

SHOW SLIDE: *Trace Minerals: Copper*

SAY: Copper is an essential trace mineral because it is present in all body tissue. It helps in the function of muscles, the immune system, and the nervous system. Copper works with iron in the formation of red blood cells. Other functions of copper include proper growth, development, and maintenance of bone, brain, and heart, and promoting healthy connective

tissue. Food sources include whole grains, beans, nuts, shellfish, organ meats, potatoes, dark leafy greens, dried fruit, cocoa, and black pepper.

SAY: The next topic of importance we will talk about is a very critical substance for good health. It makes up about 60% of the body's weight and used in about every bodily process. It is the only thing you should super-size.

ASK: Does anyone know what I am talking about?

DO: Allow participants to answer.

SHOW SLIDE: ***Water***

FEEDBACK:
Yes. I am talking about water.

SHOW SLIDE: ***Fluid Facts About Water***

SAY: Water is the body's most critical nutrient need. A person can live weeks without food but only days without fluids. Raise your hand if you think there are scientific studies that prove everyone needs to drink eight 8-ounce glasses of water a day.

DO: Allow participants to respond.

SAY: A committee of scientists was charged with compiling the science to support the *Dietary Guidelines for Americans*. When this committee studied the research on fluids, they could not find studies to support a specific guideline for eight 8-ounce glasses of water a day. Instead, they found studies emphasizing the importance of fluids. The **Fluid Facts About Water** handout summarizes the importance of drinking water. This is also a great handout to send home to parents.

Plain water is recommended for many reasons, but other beverages and foods can and do help provide daily fluid needs.

SHOW SLIDE: ***Phytochemicals***

SAY: Phytochemicals are compounds found in food that give foods their color, taste, and other characteristics. They are believed to be bioactive food components, compounds that alter physiological processes and provide health benefits beyond basic nutrition. Because of the association between phytochemicals and antioxidants, phytochemicals may decrease the risk of several types of chronic diseases. People who eat many fruits and vegetables protect their health. The *Dietary Guidelines* encourage a colorful variety of fruits and vegetables each day. Include a choice from each color group for newly discovered nutrients. Best of all, these colorful foods taste great. Refer to the handout **Nutrition Nuggets: Phytochemicals** to learn more about some of the phytochemicals and the benefits of the plant-based foods.

SHOW SLIDE: ***Cafeteria Connection: Pumping Up Performance***

OBJECTIVE: Describe how iron intake influences a student's ability to learn.

SAY: Look at the **Cafeteria Connection: Pumping up Performance** handout in your workbook.

School meals are packed with foods rich in vitamins and minerals. This lesson's Cafeteria Connection highlights the important roles iron and vitamin C play in a student's health and ability to learn.

SHOW SLIDE: ***Activity: What's for Lunch?***

ACTIVITY: What's for Lunch?

Instructions: Ask the participants look at the next activity worksheet **What's for Lunch?** Using the two handouts **Vitamins** and **Minerals** determine which menu provides the most vitamins and minerals. This activity will take about 15 minutes; 10 minutes to complete the activity and 5 minutes to review the answers. They can work together in pairs or as a table group.

SAY: Using the two handouts **Vitamins** and **Minerals** complete the activity **What's for Lunch?** worksheet. Look at both menus and determine which menu provides the most vitamins and minerals? You are only looking at vitamins and minerals in the activity. You can work as a table group to complete this activity.

DO: Allow participants 10 minutes to complete the activity. Begin with Menu 1 and discuss the vitamins and minerals in that menu. Next, discuss Menu 2.

SAY: You may not have completed the activity, but let's review what you have. Let's begin with Menu 1 and see what vitamins and minerals you determined it has.

DO: Go around the room and ask someone from each table to tell what their group decided for one of the food items in Menu 1. Spend about 2 minutes on Menu 1. Then, review Menu 2.

What's for Lunch? Answer Key

Instructions: Using the two handouts Vitamins and Minerals, compare the following two menus. Which menu provides the most vitamins and minerals? Determine the vitamins and minerals that can be found in the food items in each menu and list them in the charts.

Menu 1

Whole Wheat Chicken Nuggets
Sweet Potatoes
Green Beans
Apple
Milk

Food Item	Vitamins and Minerals
Breading	Vit. E, Thiamin, Riboflavin, Niacin
Chicken	Vit. B12, Pantothenic Acid, Sulfate, Selenium, Sodium
Sweet Potatoes	Vit. A, Potassium, Biotin, Pantothenic Acid, Copper
Green Beans	Vit. A, C, B6, Calcium, Iron, Magnesium
Apple	Vit. A, C, B6, Calcium, Iron, Potassium, Magnesium
Milk	Vit. A, D, K, Riboflavin, Calcium, Phosphorus

Menu 2

Chef Salad – Turkey, Ham, and Cheese
Romaine Lettuce
Baby Spinach
Shredded Carrots
Cucumbers
Tomatoes
Mandarin Oranges
Whole Wheat Breadsticks
Milk

Food Item	Vitamins and Minerals
Turkey	Pantothenic Acid, Selenium
Ham	Vit. D. B12, B6, Iron Magnesium
Cheese	Vit. D, B12, Riboflavin, Biotin, Calcium, Iron, Sulfate, Magnesium
Romaine Lettuce and Spinach	Vit. A, E, K, Thiamin, Riboflavin, Folate, Calcium, Sodium, Potassium, Iron, Copper
Carrots	Vit. A, D, B12, B6, Iron, Potassium, Calcium, Magnesium
Cucumbers	Vit. A, C, Magnesium, Iron
Tomatoes	Vit. A, B6, C, Pantothenic Acid, Potassium, Salt
Oranges	Folate, Vit. A, C, B6, Potassium, Calcium
Breadsticks	See Breading Menu 1
Milk	See Menu 1

ASK: Based on the vitamins and minerals, if a student ate the complete meal in either menus, which one would be the better meal?

DO: Allow participants time for a short discussion about the activity.

FEEDBACK:
Both menus provide multiples of the same vitamins and minerals. You would have to check all components of the menus to determine which menu is heathier than the other. However, either menu would be a nutritious meal based on vitamins and minerals. Menu 2 offers the dark green vegetables with the vitamins and minerals of those components that Menu 1 does not.

SAY: More help is available from fruit and vegetable promotion groups. The **Resource: Websites of Organizations: Fruits and Vegetables Groups** handout lists many organizations that provide consumer and food service recipes, tips, and ideas for enjoying fruits and vegetables.

If you find you need more color in your meals, spend some time in a grocery store or a fresh produce market. Check out the many options in the frozen, canned, and fresh food sections. Each week purchase a new fruit or vegetable you have not eaten in one of the different colors and try a new variety of foods.

SHOW SLIDE: ***Activity: Lesson 4 Reflections***

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question and I want you to (whatever you decide how you want the participants to answering). Some of the questions have several answers. (If it is a small group, let everyone have an opportunity to answer a question.)

Reflections

1. What are micronutrients?
   - They are vitamins and minerals. The body needs small amounts of these nutrients.

2. What are the two types of vitamins?
   - Fat-soluble
   - Water-soluble

3. What are the fat-soluble vitamins?
   - A, D, E, and K

4. Are excess water-soluble vitamins stored in the body?
   - No. The body excretes excess water-soluble vitamins.

5. What are the two types of minerals?
   - Major and trace

6. What is the one nutrient that is most critical to your body?
   - Water

7. How much water do you need each day?
   - The amount of water or fluids a person needs each day varies. Physical activities and weather conditions influence fluid needs. Thirst, the desire to drink fluids, is your body's cue that it needs more fluids.

8. How does poor iron intake affect a student's ability to learn?
   - Increased tiredness
   - Shortened attention span
   - Decreased capacity to work
   - Less resistance to illness
   - Impaired ability to think and problem-solve

ASK: Does anyone have any questions before we continue?

DO: Allow participants to respond. Answer questions to the best of your ability. If you do not know the answer, tell the participants you do not know the answer and will need to research the topic and get back with them.

Check the Bike Rack for questions.

A Taste of Food and Fitness

Lesson 5:

Alternate Eating Patterns

Alternate Eating Patterns

SHOW SLIDE: ***Lesson 5: Alternate Eating Patterns***

SAY: In Lesson 5, we will briefly cover four eating patterns: vegetarianism, diabetes, allergies, and celiac disease. These have been around for a long time, but have become more prominent in general population, including requests for these meals in schools.

SHOW SLIDE: ***Alternate Eating Patterns***

SAY: We continue to see increased requests for alternate eating patterns in schools and in society. Some are prescribed by a state licensed healthcare professional and some are personal preferences.

ASK: Do you have other special requests that you are managing in your schools?

DO: Allow participants to respond.

OBJECTIVE: Explain how school nutrition programs can accommodate students who prefer a vegetarian lifestyle.

SAY: Many of the different requests in schools are due to allergens. ICN has other resources to cover this topic. It is important to note that federal regulations require schools to provide meals that meet special medical needs requested by a state licensed healthcare professional. One exception is milk. Food and Nutrition Service memo 7 CFR 210 and 220 allows for the substitution of a non-dairy beverage for fluid milk for children with medical or special dietary needs in the National School Lunch Program and School Breakfast Program. The rule allows schools to accept a written substitution request from a parent or legal guardian to substitute an acceptable non-dairy beverage for fluid milk. The substitute beverage must be equivalent to the nutritional content of milk.

ASK: How do you meet special requests in your schools?

DO: Allow participants to respond.

SAY: These are great ideas. If you have any questions regarding alternate eating pattern requests, contact your State agency for clarification. Remember, with the exception of milk, you are only required to meet the requests of a state licensed healthcare professional. Whether these requests are personal preferences or requested by a state licensed healthcare professional, the goal is to serve your customer in the most seamless and safest way possible. Having a basic understanding of these different eating patterns can help you decide what is best for the students in your schools.

SHOW SLIDE: ***Accommodating Children with Disabilities in the School Meal Programs***

SAY: United States Department of Agriculture Food and Nutrition Service has updated the resource *Accommodating Children with Disabilities in the School Meal Programs*.

This resource provides guidance for school food authorities to ensure that children with disabilities have access to benefits including special meals to the children who have disabilities that restrict their meal pattern.

SFAs are encouraged to consider children's cultural and religious preferences when planning and preparing meals.

SHOW SLIDE: ***Vegetarian Eating Pattern***

SAY: People chose to become vegetarians for several reasons including personal preference, religious, health, while others just do not like meat or other foods from animals.

Vegetarianism has become increasingly popular. It is an alternate eating pattern. The term can mean different things to different people. For this training, we will use the following definition: A plant-based eating pattern that includes whole grains, legumes, nuts, seeds, vegetables, fruits, and soy products excluding dairy products, honey, eggs, meat, poultry, and seafood. The *Dietary Guidelines* state that based on a comparison of the food choices of vegetarians and non-vegetarians, the amounts of soy products, legumes, nuts and seeds, and whole grains were increased, and meat, poultry, and seafood were eliminated.

There are many different options for eating vegetarian meals. Turn to the **Cafeteria Connection: Vegetarian Eating Patterns** handout in your workbook. This handout gives an overview of the four common eating patterns we will discuss, as well as a variety of other less common patterns. I would like to bring to your attention flexitarian. This is considered a semi-vegetarian eating pattern. It is primarily plant-based but includes animal and fish products on occasion, and in small quantities. It seems to be what many students select as an eating pattern.

DO: Give participants time to review the handout.

OBJECTIVE: Identify the differences between the four most common vegetarian eating patterns.

SHOW SLIDE: ***Four Common Vegetarian Eating Patterns***

SAY: The four most common vegetarian eating patterns are lacto-ovo, lacto, ovo, and vegan. These will be the ones we discuss today.

SHOW SLIDE: ***Lacto-ovo***

SAY: Lacto-ovo vegetarianism is a plant-based eating pattern that includes some animal products, such as dairy and eggs. Consuming essential nutrients for optimal health is usually not a concern for this group since they consume both plant and some animal products.

SHOW SLIDE: ***Lacto***

SAY: Lacto vegetarianism includes plant-based foods and dairy products but does not include eggs. The eggs used in baking and some pastas need to be replaced with other products. This can become difficult because of the binding role eggs play in food production. There are many substitute products for eggs used as binding agent. Some of these products include soy powder, xanthan gum, flax meal, potato starch, pumpkin puree, applesauce, banana puree, arrowroot, tapioca, and nut butters.

SHOW SLIDE: *Ovo*

SAY: Ovo vegetarianism is very similar to lacto-ovo except dairy products are eliminated from the diet. Soy and nut milks can be used along with other vegetables (such as avocado), for dairy products in dips and flavored soy-based substitutes for cheese. The avocado and soy-based substitutes replace the proteins (curds and whey) in the dairy products.

SHOW SLIDE: *Vegan*

SAY: The fourth plant-based eating pattern is vegan. Vegans follow a much stricter eating pattern and do not consume any foods of animal origin, such as honey or gelatin.

ASK: Would a person who practices a vegan meal style eat a marshmallow?

DO: Allow participants to respond.

FEEDBACK:
A strict vegan would not eat a marshmallow. Marshmallows have gelatin in them so this would not be included in a vegan eating pattern. Gelatin is the protein from the bones, ligaments, skin, and tendons of cows and pigs. Some vegans may not use leather or other products made from animals in their daily lives as part of their personal philosophy.

SHOW SLIDE: *Vegetarian – Health Benefits*

SAY: A common question is, "Are vegetarian eating patterns healthy?"

Since one of the reasons people may choose a vegetarian lifestyle is for the health benefits, let us look closer at that topic. Vegetarians tend to have lower blood cholesterol and blood pressure levels. This reduces the risk of heart disease and stroke. Vegetarians as a group have a lower body mass index (BMI). BMI is the ratio of weight to height. A lower BMI reduces risk of other chronic diseases.

SHOW SLIDE: *Vegetarian – Nutrition Benefits*

SAY: Vegetarian meals can be higher in some vitamins, minerals, dietary fiber, and phytochemicals. The health benefits of these nutrients may in part explain the reduced risk of chronic diseases seen in vegetarians. These eating patterns are often lower in saturated fat due to the elimination of most animal products. An area of concern can be *trans* fats if they are present in bakery items, cookies, etc. Another concern may be consuming too many processed foods that have added sugar, salt, and fat.

SHOW SLIDE: *Vegetarian – Nutrients to Focus On*

SAY: A good question to ask about plant-based eating patterns is, "Are there any nutrients of concern?" The answer is yes. There are nutrients of concern for plant-based diets. Some of these nutrients are listed on the slide.

ASK: Thinking back on what you learned earlier in this class, why would these be nutrients of concern?

DO: Allow participants to respond.

SAY: Look at the **Nutrients to Focus on in Plant-Based Eating Patterns** handout in your workbook. These nutrients **MAY** be of concern if a variety of foods are not consumed. Take a few minutes to review the handout.

DO: Allow participants to look through the handout.

SAY: This chart could be used to educate students about vegetarian eating patterns. Posting this on your school website or in the cafeteria on a bulletin board about plant-based eating patterns would be a good way to share this information.

OBJECTIVE: Describe how plant-based foods can provide complete proteins.

SHOW SLIDE: ***Protein***

SAY: Most people will say that protein is the most important nutrient of concern for vegetarians, and it can be if people do not consume a good variety of foods. Remember, in Lesson 3 we talked about complete and incomplete proteins. Most plant foods contain incomplete proteins so it is important to eat a variety of foods with incomplete proteins throughout the day to ensure all essential amino acids are consumed.

SHOW SLIDE: ***Complementary Proteins***

SAY: Grains, nuts, and seeds are often limited in the amino acid lysine; vegetables and legumes are often limited in the amino acid methionine. When two foods combine to create a complete protein, the foods are called complementary. Grains provide the methionine lacking in legumes. Legumes provide lysine missing in grains. Together the two groups complement each other; they provide complementary proteins. Take a few minutes to review the next handout **Complete Proteins**.

DO: Allow participants to review the handout.

ASK: Does anyone have any questions about the information on the handout?

DO: Answer any questions.

SAY: When vegetarian meal plans increased in popularity in the 1960's and 1970's, the advice was to make sure complete proteins were eaten at every meal. However, matching complimentary proteins at every meal is no longer seen as necessary, as long as people choose a variety of foods throughout the day.

ASK: Does anyone remember the two plant-based products we talked about earlier that were considered complete proteins?

DO: Allow participants to respond.

FEEDBACK:
The answer is quinoa and soy. Quinoa is an excellent plant-based complete protein source for vegetarians and vegans. It contains iron, B vitamins, magnesium, phosphorus, potassium, calcium, vitamin E, and fiber. Quinoa contains all the essential amino acids our bodies need.

Soy is also a plant-based complete protein. Soy products are used to lower high cholesterol and high blood pressure, as well as to prevent heart and blood vessel diseases. It is also used for bone health and improving memory.

SHOW SLIDE: *Protein, Protein, Protein*

SAY: Look at the slide. Each of these food categories contain complete proteins.

ASK: How many proteins are in one (1) ounce of each food on the slide? Would anyone care to guess?

FEEDBACK:

- Edamame – 3 grams
- Legumes – 2 grams
- Dairy – Milk 1 gram
  Cheddar cheese – 7 grams
  Low-fat plain yogurt – 1 gram
- Meat – cooked 7 grams
- Quinoa – 4 grams

SHOW SLIDE: *Daily Protein Recommendations*

SAY: What are the daily protein needs? The Dietary Reference Intake (DRI) for protein varies according to age, gender, and growth stage. Remember that teen boys have the highest protein need of all the student groups served in schools. They need 52 grams of protein to meet their minimum needs and avoid protein deficiency. Teen girls on the other hand only need 46 grams to meet their minimum needs and avoid protein deficiency. An adult male needs about 56 grams of protein each day, whereas an adult female needs about 46 grams of protein each day.

Young children may need more protein per kilogram (2.2 pounds) of body weight than older children. The American Journal of Clinical Nutrition suggests that school-age children may need 1.3 grams of protein per kilogram of body weight.

SAY: We have answered the first question about the quantity of protein in vegetarian eating patterns. These diets can provide enough protein. The handout **Nutrition Nuggets: Health and Nutrition Benefits in Plant-Based Eating Patterns** puts all of this information together in a chart. Turn to that handout and let's review it.

DO: Ask participants to review the handout.

SAY: What is the bottom line on nutrition and vegetarian eating patterns? Vegetarian meals must be well planned to provide adequate nutrition. When entire food groups, such as milk or meat are eliminated, eating patterns may not be well balanced. Appropriate substitutions are necessary. People who eat vegetarian meals need to know how to meet their nutrition needs without meat, poultry, fish, eggs, or milk and dairy products. These foods are nutrient rich. Lean meats, fish, and low-fat or fat-free milk products are part of the *Dietary Guidelines for Americans*.

SHOW SLIDE: ***Physical Activity Booster***

DO: Demonstrate the activity while you give the instructions.

SAY: It's time for a physical activity. Stand up and spread your feet slightly apart. Make sure you have plenty of room for stretching. Raise your right arm up over your head. Breathe in as you raise your arm. Take your left hand and grab your right wrist. Bend at your waist to the left. As you bend, exhale. Hold for 10-15 seconds. Do this five times. Repeat doing the same on the other side.

Please return to your seats.

When you are sitting in your office finishing daily paper work, your back and shoulders can become stiff. This stretching exercise may help relieve some back and shoulder tension.

Your staff may benefit from this stretching exercise as well. When they are standing while preparing food for breakfast and lunch, their back and shoulders can become stiff. If you notice your staff looking fatigued, ask them to take a break and lead them in this stretching exercise.

OBJECTIVE: Describe the difference between Type 1 and Type 2 diabetes.

SHOW SLIDE: ***Diabetes – Medical Condition***

SAY: The next alternate eating pattern we will discuss is the diabetic meal plan. Diabetes is a medical condition that more and more Americans are concerned about due to the rising rates of obesity. Diabetes is a disease in which the body is unable to produce or provide enough insulin, a hormone that enables the body to use glucose as energy.

ASK: Who knows someone who has a type of diabetes?

DO: Allow time for participants to respond.

ASK: How many are serving meals to students with diabetes?

DO: Allow time for participants to respond.

SHOW SLIDE: ***Diabetes***

SAY: Federal law considers diabetes a disability for which schools are required to make reasonable accommodations. Modifications to the menus must be supported by a signed state licensed healthcare professional. In most cases, menus can easily accommodate children with diabetes due to the variety of foods and types of medications available today.

SHOW SLIDE: ***Types of Diabetes***

SAY: There are two types of diabetes, Type 1 and Type 2. Type 1 diabetes is also referred to as Insulin Dependent Diabetes Mellitus (IDDM). Type 1 diabetes develops when the pancreas stops producing insulin. Type 2 develops when the cells in the body do not use insulin properly, causing a rise in blood glucose. This is called insulin resistance. Both types of diabetes can affect the student population.

SHOW SLIDE: ***Type 1 Diabetes***

SAY: More than 1 million Americans have Type 1 diabetes. Generally, Type 1 occurs in children or adolescents. This type of diabetes requires insulin injections by needle or insulin pump, because the pancreas is not producing insulin.

SHOW SLIDE: ***Type 2 Diabetes***

SAY: Type 2 diabetes is usually diagnosed in adults, but now it is becoming more commonly diagnosed in obese children. This type is treated with pills or insulin injections. Weight loss, healthy eating, and exercise may help to control Type 2 diabetes.

SHOW SLIDE: ***General Meal Plan***

SAY: When planning a menu for someone with diabetes, it is recommended to include 45–60 grams of carbohydrate per meal and 15–30 grams of carbohydrate at snack time. Remember, this is only a general recommendation, and individuals should follow the advice of their state licensed healthcare professional.

SHOW SLIDE: ***Carbohydrate Counting***

SAY: The focus on carbohydrate counting is because it impacts blood glucose the most out of all the nutrients. Carbohydrates begin to raise blood glucose within approximately 5 minutes of initiation of food intake. They are converted to nearly 100% blood glucose within about 2 hours.

It is very important to note that when counting carbohydrates only the total carbohydrate number on the label is considered. You do not need to add the total carbohydrates and sugars together.

SHOW SLIDE: ***Nutrition Facts Label***

SAY: Look at the partial label on the screen. Do you see the three numbers, Total Carbohydrate, Dietary fiber, and Sugars? Only the total carbohydrate number is considered when counting carbohydrates.

OBJECTIVE: Distinguish between food allergy, food intolerances, and celiac disease.

SHOW SLIDE: *Food Allergies*

SAY: According to the CDC's *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Programs*, food allergies are a fairly common health concern, and the number of children is increasing. In 2007, three million children reported to have a food allergy. Research indicated 18% increase in the prevalence of food allergies from 1997 – 2007. The National Center of Health Statistics estimates that about 4 of every 100 children have some type of food allergy. Consequences of food allergies can be grave, because they are associated with chronic conditions, such as asthma, and may even lead to death.

SHOW SLIDE: *What is a Food Allergy?*

SAY: A food allergy is an immune reaction to a protein in a food. In allergic individuals, certain foods can trigger the immune system to develop an antibody against the allergen (food protein). Every time a person with the antibody consumes that allergen, the body immune response triggers a variety of allergic symptoms. Even a bite of food can result in an allergic reaction.

SHOW SLIDE: *The Major 8 Allergens*

SAY: There are eight (8) foods that account for 90% of all food allergic reactions in the United States:

1. Milk
2. Eggs
3. Peanuts
4. Tree nuts - examples include walnuts, almonds, cashews, pistachios, and pecans.
5. Wheat
6. Soy
7. Fish
8. Crustacean shellfish - examples include shrimp, lobster, and crab.

Be aware that oysters, mussels, and clams do **not** fall under crustacean shellfish. Consideration must be taken with allergies related to them as they are not listed as one of the major 8 allergens.

SHOW SLIDE: *Allergic Symptoms*

SAY: One or more food allergic symptoms can occur within minutes or up to two (2) hours after eating the food, and can be mild to severe in nature. More than one symptom often presents itself.

A mild symptom could be hives (a reddish, swollen, itchy area on the skin), nausea or vomiting, stomach pain, nasal congestion or runny nose. A severe symptom could be swelling of the lips, tongue, or throat, shortness of breath, or a drop in blood pressure. Anaphylaxis is a serious life-threatening reaction; has rapid onset, and may cause death. An allergic reaction could occur from smelling or inhaling the food, but these conditions are rare. The most common way for an allergic reaction to occur is by ingesting the food.

Not everyone is aware of the symptoms of food allergic reactions and a delay in responding to the symptoms can be life threatening. Education and training to increase the awareness of food allergy with all members of the school community could prevent a tragedy.

SHOW SLIDE: *What is a Food Intolerance?*

SAY: Food intolerance is an abnormal physiological response that involves the gastrointestinal system, not the immune system. Common food intolerances that you might hear about are: gluten, monosodium glutamate (MsG), and lactose. Eliminating the food will eliminate the symptoms.

A food intolerance reaction can be similar, and is often confused, with a food allergic reaction because they may have similar symptoms: nausea, diarrhea, and/or vomiting.

The treatment for both a food allergy and food intolerance is determined between the state licensed healthcare professional and the patient. Milk intolerance is referred to as "lactose intolerance". Food intolerances do not cause immediate life threatening reactions. However, food intolerances may still be considered a disability on a case by case basis by a state licensed healthcare professional, so you may have to make accommodations to school meals. Some children may be able to ingest some food related to their food intolerance, such as yogurt for a milk intolerance, but it is up the state licensed healthcare professional to prescribe such allowances.

ASK: What food allergies and food intolerances are you dealing with in your school?

DO: Allow time for participants to respond.

SHOW SLIDE: *Celiac Disease*

SAY: Celiac disease is unique; it is a food intolerance that does involve the immune system, but only in the small intestine. The adverse reaction occurs when someone with celiac disease eats gluten, a protein found in wheat, barley, and rye. Oats, although they do not naturally contain gluten, can sometimes be unsafe due to cross contact or cross pollination. There is no cure, so a strict gluten-free diet is followed to manage the symptoms and promote intestinal health. Celiac disease can have significant long-term health effects, and it can also have some significant acute neurological effects. Celiac disease is always considered a disability under the Americans Disabilities Act (ADA), and must be accommodated. A note from a state licensed healthcare professional is still required to make these accommodations.

ASK: Do you purchase gluten-free products to serve in your cafeteria?

DO: Allow time for participants to respond.

SAY: Gluten-free products are becoming more available, but they are typically higher priced and considered a specialty food. The purchase of gluten-free bread and other gluten-free foods is an appropriate use of school nutrition program funds. Careful label reading is needed to assure "Gluten-Free" products are purchased. Do not be confused by other terms used on labels: "Wheat-Free" does not mean "Gluten-Free" as gluten is in food products other than wheat. Turn up your creativity with menu planning and find foods that are naturally gluten-free; they can also fit into the school nutrition meal pattern and may be more affordable than gluten-free products.

Look at the handout **Myth Busters: Gluten Allergy, Intolerance, and Celiac Disease**. This handout lists some myths you may have heard and discloses the truth concerning the myths. Take a few minutes to review the handout.

OBJECTIVE: Demonstrate reading food allergens on a food label.

SHOW SLIDE: ***Food Allergen Labeling and Consumer Protection Act (FALCPA)***

SAY: The Food Allergen Labeling and Consumer Protection Act is a federal law. It was effective January 2006 and mandates the labels of foods containing the eight (8) major food allergens be declared in plain language on the product. This law specifies where and how to present the information.

SHOW SLIDE: ***Food Allergies on the Nutrition Label***

SAY: The food ingredient MUST be in the ingredient list or listed after the ingredient list by stating product "Contains" the particular allergen. The two examples are on this slide.

"Contains" followed by the name

- **Example: "Contains: milk and wheat"**

Parenthetical statement in the list of ingredients

- **Example: "albumin (egg)"**

These two pictures show the different methods of labeling. The green ingredient label uses the "Contains" statement and the white label uses the parenthesis method.

SHOW SLIDE: ***Precautionary Labeling***

SAY: There is another type of allergy labeling called Precautionary Labeling. This type of labeling is NOT covered in the *Food Allergen Labeling and Consumer Protection Act*, so it varies widely from manufacturer to manufacturer.

One type of precautionary labeling is the "May Contain" statement. For example, a product label could say that the product "may contain" traces of tree nuts. Another type of precautionary labeling is the "Made on Equipment" statement. For example, a label could say that the product is "made on equipment" that also makes products containing eggs and tree nuts.

Products labeled with precautionary labeling are not safe for people with known food allergies.

SHOW SLIDE: ***Resources***

SAY: I mentioned the resource *Accommodating Children with Disabilities in the School Meal Program* at the beginning of this lesson. Other resources that will help guide your efforts to manage food allergies in your school are the *CDC Voluntary Guidelines*, FARE: The Food Allergy Research and Education website, the ICN website at www.icn.org/foodallergy, and a

publication from the USDA and the National Education Association (NEA) Health Information Network called: *The Food Allergy Book*. Copies are available in English and Spanish by contacting NEA or going online.

SHOW SLIDE: *Activity: Lesson 5 Reflections*

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question, and I want you to (whatever you decide how you want the participants to answering). Some of the questions have several answers. (If it is a small group, let everyone have an opportunity to answer a question.)

Reflections

1. What are the four most common vegetarian diets?
   - Lacto-ovo
   - Lacto
   - Ovo
   - Vegan

2. What are some health benefits of vegetarianism?
   - Lower blood cholesterol and blood pressure levels
   - Reduced risk of heart disease and stroke
   - Lower BMI
   - Reduced risk of Type 2 diabetes and some types of cancer
   - Diet lower in saturated fat

3. Are there nutrients of concern in a vegetarian eating pattern? If so, what are they?
   - Yes.
   - Protein
   - Iron
   - Calcium
   - Vitamin B12 and D

- Omega-3 fatty acids
- Zinc
- Iodine

4. What are the two plant-based foods that are complete proteins?
   - Soy and quinoa

5. Is there a difference between Type 1 and Type 2 diabetes? If so, what is the difference?
   - Yes, there is a difference.
   - Type 1 diabetes is also known as Insulin Dependent Diabetes Mellitus. The pancreas stops producing insulin.
   - Type 2 diabetes develops when the body does not use insulin properly, causing a rise in blood sugar. It is also called insulin resistance. Type 2 diabetes is usually diagnosed in adults. However, because of the increasing obesity rate in children, it is also diagnosed in children.

6. Is there a difference between a food allergy and a food intolerance? If so, what is the difference?
   - Yes. There is a difference.
   - A food allergy is an immune reaction to a food protein.
   - A food intolerance is when the body abnormally responds to a food through the gastrointestinal system. An example: a person may not have the enzyme lactase to break down the milk sugar lactose.

7. What are the major eight (8) food allergens?
   - Milk
   - Eggs
   - Peanuts
   - Tree nuts
   - Wheat
   - Soy
   - Fish
   - Crustacean shellfish

8. Is it mandatory for food manufacturers to put information concerning that the food contains any of the eight (8) major allergens on the Nutrition Facts label?
   - Yes
   - The law specifies that it contain in plain language the allergen(s) and how and where the information is to be presented.

9. Is celiac disease a food allergy or food intolerance?
   - Food intolerance

10. What are some incomplete protein foods that can be combined to make complete protein foods?
    - Peanut butter and whole wheat bread
    - Beans and rice
    - Granola with oats and nuts

SAY: Does anyone have any questions before we continue to Lesson 6?

DO: Allow for questions. Check the Bike Rack for questions.

A Taste of Food and Fitness

Lesson 6:

Putting it All Together

Putting it All Together

SHOW SLIDE: ***Lesson 6: Putting it All Together***

SAY: Over the past five lessons, we have covered the basics of nutrition. We have discussed how good nutrition enhances health today and in the future and how to use MyPlate, the *Dietary Guidelines for Americans*, and the Nutrition Facts label information on a food package to help guide our food choices. We have learned how the body uses protein, carbohydrate, fat, vitamins, and minerals and the food sources of each of these nutrients. In some of the lessons, we have taken a closer look at personal food choices and nutrition habits. Now we are going to bring all of these areas together. These factors contribute to making food choices for good health and good nutrition.

OBJECTIVE: Identify factors that influence food choices.

SAY: Each day everyone makes many different meal pattern decisions. When personal habits are examined closely, new insights are gained. Many factors may influence our food choices.

ASK: What are some of those factors?

DO: Accept all reasonable answers. Take responses for 30 seconds or stop when the four factors time, availability, price, and taste are mentioned.

FEEDBACK:
Based on your answers, let's try to put them into four categories that influence food choices: time, availability, price, and taste.

SHOW SLIDE: ***Time***

SAY: We live in a time-sensitive culture. Consider how fast everything happens today. Instant messaging, email, and the Internet are aspects of our fast-paced lives. Personal schedules are frequently hectic. The amount of time available to prepare, serve, and eat meals shapes food choices.

Your **24-Hour Food Recall** and **24-Hour Physical Activity Recall** worksheets were probably impacted by time. Pull out those two documents and review them.

ASK: How has time impacted the food choices and preparation of the foods you listed on the 24-Hour Food Recall? How did time impact the activities you listed in the 24-Hour Physical Activity Recall?

DO: Accept all reasonable answers.

ASK: How can we give more time to good nutrition and savor the flavor of the foods we choose?

What are some time-saving ways you have found to prepare nutritious foods in your busy, time-crunched life?

DO: Accept all reasonable answers.

SAY: Look at the **Time-Saving Tips** handout in your workbook. Let's review the handout and see if you can add some time-saving tips to the list.

DO: Allow time to review. Give 1-minute after review to allow them to add their own tips.

ASK: Who would like to share a tip they have added?

DO: Allow participants to respond.

SHOW SLIDE: ***Availability***

SAY: What about availability? The Natural Resources Management and Environment Department defines food availability as "sufficient quantities of food of appropriate quality, supplied through domestic production or imports, including food aid." Food choices are made based on what you want and if it is available when you go to the market. For example, if you have access to a variety of fruits and vegetables, you may choose them more often.

What if your only access to food is a convenience store? How many different grains, fruits, and vegetables would be available? Can you find a variety of food choices in each food group in convenience stores? Convenience stores, specialty stores, open markets, and meat markets are limited on floor space and storage; therefore, they cannot offer the same quantity and variety as supermarkets and mega markets.

SHOW SLIDE: ***Price***

SAY: How does the price of food influence the foods you purchase? The cost of food also determines choices. Price may be one reason people eat more of some foods. Buying in bulk or super-sizing a food order may lead people to believe they are getting the most for their money. To determine if you are getting the most for your money, you will need to break down the cost to a unit price, and then compare prices.

Super-sizing could lead to overeating and weight gain. Not everyone considers extra weight a good return on money spent. Manufacturers might keep the price the same and decrease the size of the content and package. Look at the soft drinks that manufacturers made in smaller size containers. Is the cost the same or less? Manufacturers may state there are fewer calories and less sugar. However, is that because the container is smaller or because the calories and sugar have been decreased? Can you think of any foods that have increased in price but the contents have decreased?

The **Eating Better on a Budget** handout in your workbook gives some suggestions for eating on a budget. Let's review the handout.

DO: Review the handout.

ASK: Does anyone have anything else to add?

DO: Allow participants to share.

SHOW SLIDE: ***Taste***

SAY: The last factor we will discuss is taste. Taste is a strong factor that determines what we choose to eat. Good nutrition and good taste are not opposing forces. While we are born with certain taste preferences, these can change. Perceptions can change due to natural processes of aging. Our preferences can also change if we are actively adventurous in trying new foods. The very compounds in fruits and vegetables that give health benefits may also contribute to the unique taste of the produce.

Often, individuals who reduce their intake of salt or sugar find their taste preferences change. After eating new food choices for a few weeks, the old pattern of eating may be perceived as too salty or too sweet. Another common change in taste preference is from whole milk to reduced-fat, low-fat, or fat-free milk. Once a person is routinely enjoying fat-free milk, a glass of whole milk can seem like drinking cream.

ASK: What did you notice about the tastes of new foods you may have tried?

Has anyone ever changed their eating pattern and noticed a personal change in taste preferences?

Are there any challenges you face with students trying new food items?

DO: Allow participants to answer each question before asking the next. Accept all reasonable answers and offer other ideas.

FEEDBACK:

- Prepare a food using a new preparation method, and change one aspect of a food. For example, oven baked strips of potatoes lightly coated with canola oil or spray in place of commercially frozen french fries.
- Add a small amount of nuts or a flavorful cheese to food you are preparing.
- Make a colorful main dish salad.
- Purchase low-sodium broth and canned vegetables.
- Toasting nuts and seeds to enhances flavors. Cooking enhances the flavor of many foods.
- Stop drinking sweet beverages for 1 week to see if your tastes change.

SAY: Taste perceptions are unique to each person. Knowing more about your own taste preferences can help you widen the food choices you make.

SHOW SLIDE: *Activity: Factors That Influence Food Choices*

ACTIVITY: Factors That Influence Food Choices

Instructions: Ask the participants to discuss, at their table, the challenges/problems they encounter with the four factors time, availability, price, and taste. Then, brainstorm some possible solutions. The discussion can be with the challenges they face at school or at home. There are no right or wrong answers to this activity.

SAY:
Discuss at your table, the challenges/problems you face at school or at home concerning time, availability, price, and taste and record them on the **Factors That Influence Food Choices** worksheet in your workbook. The following are some questions you might ask: How has time impacted the food choices and preparation of the food? What are the challenges you have encountered with the availability of certain foods? How can you make price work for better nutrition choices? What strategies do you use to make the most of your food and nutrition dollar? When you have listed the challenges/problems, brainstorm to develop some possible solutions to overcome the challenges.

OBJECTIVE: Describe how school nutrition professionals can incorporate students' taste preference into daily meals that will contribute to students' health.

SHOW SLIDE: *Cafeteria Connection: Tap Into the Power of Taste*

SAY: Balancing taste and nutrition is a major component of school meals. The **Cafeteria Connection: Tap Into the Power of Taste** highlights some ways to incorporate student taste preferences into menu planning. It also gives ideas on ways to influence students' taste preferences for new foods. Let's review the handout and discuss at your table ways you can add flavor to foods you prepare at school.

DO: Allow 5 minutes for review and discussion.

OBJECTIVE: State ways to enhance the flavor of food without added salt, sugar, or fat.

DO: Locate the **Nutrition Nuggets: Enhancing Flavors** handout in your workbook.

SAY: The next handout in your workbook is **Nutrition Nuggets: Enhancing Flavors**. Taste is a wonderful aspect of eating. This handout gives ideas for how to increase the enjoyable flavors in foods. There are also tips to decrease the flavor components of some foods. Experiment with fresh herbs and spices. There are many cooking and food websites for you to explore as you look for new ways to prepare tasty foods.

DO: Allow time for review.

ASK: How do you enhance the flavors of foods in your school?

DO: Allow time for sharing.

SHOW SLIDE: ***Physical Activity Booster***

SAY: It is time for a physical activity break. Our physical activity booster focuses on building strength. The two activities use resistance to strengthen muscles.

DO: Demonstrate how to do the activity as you lead the participants through the activity. Have participants stand up and spread at least an arm's length apart.

SAY: Hold the fingers of each hand close together and curl the fingers, making a C-shape with each hand. Clasp the fingers of one hand against the curled fingers of the other hand in front of your chest. The elbows are bent, pointing out to each side, with the arms at shoulder level. Keep the fingers of each hand clasped and pull each hand in the opposite direction for 5 seconds. Now, release.

Next, put hands together like praying hands, with elbows and arms in a similar position to the first activity. Push the palms of the hands toward each other. Push for 5 seconds and release.

Repeat the first resistance muscle-strengthening activity. This time, think of one hand representing good health and the other hand representing good taste. Do you view food choices for good health and good taste as opposing forces that pull in different directions?

Now repeat the second muscle-strengthening activity, again thinking of one hand representing good health and the other hand representing good taste. Do you view food choices for good health and good taste as supporting forces that work together?

Which of these two muscle-strengthening activities feels like it is building stability? Reflect on the analogy of good health and good taste for a moment. We have a choice. We can view good nutrition and good taste as two forces pulling in opposite directions, or forces working together.

DO: Have participants return to their seats.

SHOW SLIDE: ***Activity: Personal Discovery Assessment***

ACTIVITY: Personal Discovery Assessment

Instructions: Complete the **Personal Discovery Assessment** worksheet by answering the questions and completing the chart on the next page in the workbook.

SAY: Another aspect of *Nutrition 101: A Taste of Food and Fitness* is personal discovery. The next page in your workbook is a **Personal Discovery Assessment** worksheet. Take a few minutes to think about what you have learned throughout the training and fill out the worksheet. This is a more specific tracking form for you to use to monitor not only your portion sizes, but also the food groups

you have consumed in a 24-hour period. We did a quick 24-hour food recall in previous lessons, but this will help you put together all the information that you have learned today. The assessment will help you see where you need to add an extra effort to ensure that you are consuming a variety of foods and nutrients. When you have completed the activity, share your ideas with a learning partner or someone at your table.

DO: Allow participants to fill out the worksheet and share with a learning partner.

ASK: Does anyone want to share what they have learned about their personal discovery with the group?

DO: Allow participants to respond.

Portion Control

SHOW SLIDE: ***Portion Control***

SAY: Good taste and good nutrition do not have to be opposing forces. We touched on portion size when we reviewed the *Dietary Guidelines*. Since portion control is so critical to good health, let's look at it a little deeper. Portion size is a tool to use to keep good taste and good nutrition working together. Today, portion distortion is common. Some foods that can play a small, flavorful part of the eating pattern are consumed too often and in too large a quantity.

SHOW SLIDE: ***Be a Portion Pro***

SAY: Look in your workbook at the **Portion Distortion** handout. It highlights how portion sizes have grown over the past 20 years. Keep foods in their proper place by occasionally eating a small portion. Enjoy every tasty mouthful. Pay attention to the flavors and eating experience. Choose to enjoy small treats that really satisfy, rather than large volumes of less flavorful versions of the same food. You will be a portion pro in no time. The next handout **Be a Portion Pro** list some foods with their ideal portion sizes as compared to household items. Compare the amount of food on a plate to the size of these items; decide how many servings are in the portion.

DO: Have a 3-minute discussion about portion control.

ASK: What are some things you can do to control the amount of food you eat at one time or over the course of the day?

FEEDBACK:

- write down the foods you eat
- put food in a single serving container
- use a salad plate
- eat from a snack bag
- do not eat out of the full size bag
- eat at the table

The MyPlate.gov website also offers **Tips for Eating Healthy When Eating Out**. We have included that as a handout for you to review at home.

SHOW SLIDE: ***Activity: My Eating Habits***

ACTIVITY: My Eating Habits

Instructions: For 3 days, keep track of the food and meals you eat. Fill out the My Feeding Habits worksheet 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.

SAY: The next activity **My Eating Habits** is one that can be completed at home. Once you start tracking your eating habits in a 24-hour period, you will begin to see where you have challenges. This activity will help you dig even deeper into your eating habits. The purpose of this activity is to help focus attention on other aspects of eating known to influence how and what you eat.

For 3 days, keep track of the food and meals you eat. Fill out the form, 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 5 = paid complete attention to each flavor tasted.

- Rate your level of hunger before and after eating using this scale:

  1 = famished to 5 = uncomfortably overstuffed.

SAY: The first line of the form has an example of how to record the information.

This assessment activity is for your personal use. Remember, the main purpose of the activity is to give you an opportunity to learn more about yourself and your eating pattern.

The last handout in this lesson is **10 Tips: healthy eating for an active lifestyle** from the choosemyplate.gov website.

Eating well doesn't have to be expensive or over burdensome. Using simple techniques to surround yourself with a variety of healthy choices will make it easy.

SHOW SLIDE: ***Activity: Lesson 6 Reflections***

ACTIVITY: Reflections

Instructions: This activity offers an opportunity for you to review the material covered in this lesson. I will ask you a question, and I want you to (whatever you decide how you want the participants to answering). Some of the questions have several answers. (If it is a small group, let everyone have an opportunity to answer a question.)

Instructor's Note: *Depending on the amount of time, you can ask all of the questions or some of the questions. You may not want to wait for all of the answers. For example, questions 2, 3, and 4 have many possible answers. You may only want to take four (4) answers.*

Reflections

1. What factors influence food choices?
   - Time
   - Availability
   - Price
   - Taste

2. What are some ways you can enhance the flavor of foods?
   - Adding lemon juice on cooked vegetables will suppress the bitterness of the vegetables.
   - Adding a strong-flavored cheese to vegetables will suppress the bitterness of the vegetable. The salt in the cheese suppresses the bitterness.
   - Combining a strong-flavored cheese with a low-fat cheese will lower the calories.
   - Putting black pepper on top of a food will suppress that taste of salt. Red pepper does not suppress the perception of salt.
   - Using spices will enhance the natural sweetness of foods. Some examples are cinnamon, cardamom, ginger, and nutmeg.
   - Toasting nuts and seeds brings out their flavors.
   - Using a slow-cooking method to prepare the food brings out the natural flavors of the food.

3. What are some ways you can get the students more involved in school meals?
   - Conduct surveys to find out what students like.
   - Collect ideas for new menu options.
   - If the new ideas need makeovers to meet the nutrition requirements of school meals, check with colleagues for recipes and distributors for new food items.
   - Organize a student advisory council to serve as a taste panel.
   - Ask a student group that already exists, such as the student body officers or a service club, or gather a new group of students.
   - Ask students to taste test menu items, both new options and old favorites, and give feedback.
   - Ask students to poll other students for new menu ideas.

- Work with teachers; they make great partners. Talk to teachers, and plan ways to take new tastes to the classroom.
- Promote a variety of fruits and vegetables of many colors in primary grades.
- Offer a tasting activity of ethnic foods featuring whole grains in classes studying different parts of the world and different cultures.
- Conduct mock elections for new menu candidates with grades studying U.S. history and democracy. Use a taste and vote ballot.
- Market new menu items. Provide bite-size samples of new menu options on the serving line. Let student know when the new food will be served as part of lunch.
- Provide "just a taste" opportunities. Younger students may only select familiar foods at school meals. The chance to have just a taste of an unfamiliar food may encourage children to make different choices.
- Partner with common interest groups. PTO/PTA groups, local nutrition and health organization, and food companies may be able to help.
- Connect with the classroom. Conduct the Plan a Meal activity. Students may give great new taste ideas for the menu.

4. What are some tips for healthy eating when you eat out?
   - Drink water, fat-free or low-fat milk, unsweetened tea, or other drinks without added sugar.
   - Start your meal with a salad packed with veggies to help control hunger.
   - Ask for salad dressing to be served on the side.
   - Choose main dishes that include vegetables, such as stir-fries, kebobs, or pasta with a tomato sauce.
   - Order steamed, grilled, or broiled dishes.
   - Choose a small or medium portion.
   - Order an appetizer-sized portion.
   - Share a main dish with a friend.
   - Ask for a to-go container when food is served. Put a portion of the meal in the container to take home for another meal.

ASK: Does anyone have any questions?

DO: Answer any questions to the best of your ability. Check the Bike Rack for questions.

A Taste of Food and Fitness

Lesson 7:

Nutrition Issues in the Media

Nutrition Issues in the Media

SHOW SLIDE: ***Lesson 7: Nutrition Issues in the Media***

SAY: We have explored a lot of nutrition information in the previous lessons. How does the consumer find good, factual information? How do you decide whether the information is fact or fad? How many of you have read or heard a nutrition claim in the media?

OBJECTIVE: Identify the common signs of misleading nutrition information in the media.

SAY: Nutrition is a science. Yet, the basics of good nutrition have not changed. Current information supports variety, balance, and moderation. New information provides more details on healthful food choices and eating patterns. Vegetables are an example. For decades, the advice has been to eat several servings of vegetables daily. Now the emphasis is on eating different colored vegetables as a part of a healthful diet.

Today, nutrition news is everywhere. New discoveries are made daily; those discoveries create nutrition news. The daily news includes findings from dietary studies. Nutrition news does not always appear in traditional newscasts; however, many magazines cover nutrition in nearly every issue. They are packed with recipes and meal plans with claims to help you sleep better, lose weight, and boost your energy.

SHOW SLIDE: ***Infomercials, Books, Meal Plans***

SAY: Television and cable channel infomercials often feature nutrition-related products. Infomercials are informational commercials; they are designed to sell a product, such as diet books, weight loss products, exercise equipment, exercise videos, and meal plans. If the product seems too good to be true, more than likely it is. Be a smart shopper; make sure the product is right for you and will do what it promises.

The Internet is another outlet of nutrition information. Has anyone heard of a popular weight loss plan? This is a huge industry making a lot of money.

ASK: What are some of the plans you have heard of or tried?

DO: Allow participants to answer.

SAY: New information about nutrition is sometimes confusing. Often we are left wondering if the information is actual news or is it just nonsense. It is a challenge to sort the real information from the junk.

Most of these meal plans are similar. They promise weight loss and are promoted in mass media. Each one of these meal plans should be reviewed carefully before you invest your

money or subject your health to their claims.

To help make sense out of nutrition news, New Zealanders Nutrition Foundation put together a list of tips that are summarized on the next handout **Evaluating Nutrition Messages**. The messages ask the following questions to help make sense of today's nutrition news headlines.

SHOW SLIDE: ***Is a quick fix promised?***

SAY: 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.

SHOW SLIDE: ***Are dire warnings given about a food?***

SAY: Are dire warnings given about a specific food? Rarely is any one food or product a sure-fire cure or reason for an illness. Many times, individuals or groups with other agendas design these claims. The individual's or group's agenda is not necessarily based on science and health.

SHOW SLIDE: ***Do the claims sound too good to be true?***

SAY: Do the claims sound too good to be true? If so, the claims probably are. We have learned that health is a complex subject. It involves family history; personal choices; long-term activity, food, lifestyle habits, and other unknown factors.

SHOW SLIDE: ***Does the report give simple findings from a complex study?***

SAY: Does the report give simple findings from a complex study? Most people would be amazed to see the difference between the research and media reports. The media wants 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. For all the facts, read the complete research report.

SHOW SLIDE: ***Is a single study being used for new advice?***

SAY: 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 announce new nutrition science discoveries.

SHOW SLIDE: ***Are good and bad foods listed?***

SAY: Is a list of good and bad foods issued? Most people can eat a moderate amount of just about any food without it producing ill effects. The exception is someone with a food intolerance or a life-threatening food allergy. Our habits over time are important factors. What do we frequently eat? How much do we usually eat of different foods? For example, russet potatoes are packed with nutrients, but eating only French fries for vegetables every day is an eating pattern. French fries as the only vegetable choice does not promote health. Potatoes are not a bad food, but the lack of variety of vegetables and frying the potatoes is not a healthy eating pattern.

SHOW SLIDE: ***Is a product being sold?***

SAY: Is a product being sold? Be cautious if a specific product is promoted as the cure-all answer to a problem. Profits may motivate the people behind the information. A person stating they are a doctor or nutritionist does not guarantee the person is qualified to give nutrition advice. Is the person a medical doctor or do they have a doctorate in literature? Anyone can call themselves a nutritionist; however, the term Registered Dietitian is legally protected. A Registered Dietitian has to complete a bachelor's degree in nutrition science from an approved U.S. college or university, complete a supervised practice, pass a national exam, complete continuing education, and follow a professional code of ethics.

SHOW SLIDE: ***Do scientists and health organizations agree?***

SAY: How well was the study conducted? Scientists will read and evaluate another scientist's work before it is released to the public. This process is called peer review. Be very cautious of findings published by individuals or groups without peer reviews.

Testimonials, one person's story, are usually not peer reviewed. In a testimonial, someone says, "I did this and this happened." The two events may not be cause and effect. The two events may be coincidence.

Do credible health organizations agree? When misleading information enters the public domain, usually leading health organizations respond. They will provide information about concerns with a study's findings or a group's recommendations. Watch for follow-up in the days after a report. Check with leading health organizations. You may find out the rest of the story. The organizations listed throughout this resource are good places to start for more information.

SHOW SLIDE: ***Are the results reasonable?***

SAY: Does the study take results from one group and expand to others? The results of a study of one group of individuals cannot be applied to everyone in the population. There are differences between children and adults, women and men, and between cultures in the population. There are also very big differences between animals and people. Many times research is first conducted with animals. The results may show a promising new approach for further study. The results of animal studies cannot be directly applied to people.

SHOW SLIDE: ***Be open to new information.***

SAY: Keep an open, questioning mind. Nutrition science continues to find new information. We need to keep an open mind to new information. It is also important to question the information and not just blindly accept every new report. When taken all together, the sum of nutrition research still supports eating a wide variety of foods in moderate amounts that balance the energy we eat with the energy we use. It is not a new finding. It is not a very exciting headline. It is, however, reassuring. By following basic nutrition guidelines, we are making good choices. Smart nutrition choices promote our health, the health of our families, and the health of the children we serve.

OBJECTIVE: Determine ways school nutrition programs can be a source of credible nutrition information for the children and adults accessing the programs.

SAY: School meal programs are designed to meet the nutritional needs of growing students. Nutrition science is the basis for these requirements. Not every new piece of information promoted in the news media about nutrition meets the science-based standard.

This **Cafeteria Connection: News Know-How** lists a few ideas for responding to nutrition trends and fads.

DO: Give participants 2-minutes to look over the handout.

SHOW SLIDE: ***Internet***

SAY: Nutrition information is also found on the Internet. The Internet is a convenient way to stay current in nutrition knowledge. However, one needs to be careful when using the Web. Anyone can post information, and many groups are skillful at making the information look scientific. The last handout **Resource: Nutrition on the Web** lists some reliable sources for nutrition information.

SAY: We are going to wrap-up the training with an activity.

SHOW SLIDE: ***Activity: ABC Wrap Up***

ACTIVITY: ABC Wrap Up

Instructions: Draw a line down the middle of two to four pieces of flip chart paper. Write the alphabet (13 letters on the left side and 13 down the center on the right side). The number of flip chart paper will depend on the number of participants in the training. There should be enough room beside each letter to write a word. Split the participants into two to four groups and have them line up single file in front of the flip chart. Give a marker to the person at the front of each line. When you say, "Go", the teams will race against each other to fill out the flip chart with ideas and concepts from the day's training. For example, participants may put the word "nutrition" for the letter "N" or "Internet" for the letter "I." For tough letters like "U" and "X," participants can use a word that incorporates that letter such as "sulfate" and "exercise." Each word can only be used one time. They do not have to fill it out in alphabetical order, and they will continue to fill out the charts until the alphabet is complete. The first team to complete their list wins. Participants can use any charts on the walls, the workbook, and each other for help. This activity will take about 10 minutes.

Instructor's Note: *Depending on size of class, another flip chart and team may be needed. Groups should be no larger than 10 people. Make sure to check your roster before class to determine how many teams you will need for this activity.*

SAY: Our last activity will be combined with a physical activity. I am going to count you off into ____ groups. Ones please line up single file at the front of the flip chart paper on the left, and Twos please line up on the right (continue until all groups are assigned to a flip chart). I am going to give the person in front a marker. When I say, "Go," write a word next to any letter that relates to a concept learned in today's training. For example, you may put the word "nutrition" for the letter "N" or "internet" for the letter "I." For tough letters like "U" and "X," you can use a word that incorporates that letter such as "sulfate" and "exercise". You do not have to fill out the chart in alphabetical order.

The front person will write their word then pass the marker to the next person in line, and goes to the back of the line. The person with the marker will write the next word, pass the marker to the person behind them; go to the back of the line, and so on until the alphabet is complete. The teams will race against each other to fill out the flip chart first with ideas and concepts from the day's training. You can use any charts on the walls, the workbook, and each other for help.

DO: Allow 10 minutes to complete the wrap up activity.

Instructor's Note: *While the teams are working on the relay game, put the post-assessments on the tables.*

SAY: That was challenging and fun! You had to think back to this morning to remember some of the words and concepts. Are there any questions?

DO: Answer all questions to the best of your ability. Review questions submitted on the Bike Rack.

SHOW SLIDE: ***Post-Assessment***

DO: Allow 10 minutes for participants to take the Post-Assessment. Collect all of the assessments before giving the correct answers. Make sure participants have put their identifying symbol on top of the page for comparison of learning. Go through the answer key with the participants.

SAY: Now it is time to see how much you have learned. You will find the Post-Assessment on your tables. Make sure you put the same identifier on the top of the page as you did for the pre-assessment. Complete the Post-Assessment and lay it to one side of the table when you are finished. (Instructor may choose a different way to collect the assessments.) When everyone is finished, we will go over the correct answers. Before you leave today, you may pick up a copy of the Pre-/Post-Assessment Answer Key to take with you.

SHOW SLIDE: ***Thank You!***

SAY: Thank you for attending today's training. The Institute of Child Nutrition partners with USDA's Food and Nutrition Service (FNS) to develop and support training events like our session today. We would like your feedback on this training program.

SHOW SLIDE: ***ICN***

DO: Provide participants the training evaluation form. Make sure all participants have signed the Attendee Roster.

SAY: I have a Certificate of Completion for each of you for completing this *Nutrition 101: A Taste of Food and Fitness* training. Keep this record in your files.

Congratulations, and thank you for participating today! I hope you will keep learning.

SHOW SLIDE: ***ICN on Social Media***

DO: Provide attendees a Certificate of Completion.

SHOW SLIDE: ***ICN Mission and Vision***

SAY: Watch for more chances to take classes through ICN, work, and local school nutrition organizations.

Resources

Academy of Nutrition and Dietetics (www.eatright.org)

American Cancer Society (www.cancer.org)

American Dental Association (www.ada.org)

American Diabetes Association (www.diabetes.org)

Apricot Producers of California (www.apricotproducers.com)

California Cling Peach Board (www.calclingpeach.com)

California Dried Plum Board (www.californiadriedplums.org)

California Kiwifruit Commission (www.kiwifruit.org)

California Raisin Marketing Board (www.raisins.org)

California Table Grape Commission (www.tablegrape.com)

California Tomato Grower's Association, Inc. (www.ctga.org/)

Cherry Marketing Institute (www.choosecherries.com)

Florida Department of Citrus (www.floridacitrus.org/oj/)

Florida Tomato Committee (www.floridatomatoes.org)

Food and Drug Administration Office of Consumer Affairs and Information (www.fda.gov)

FDA Consumer online (www.fda/gov/forconsumers/consumerupdates/default.htm)

Food and Nutrition Information (http://fnic.nal.usda.gov/ nal_display/index.php?info_ center=4&tax_ level=)

International Banana Association (www.thepacker.com/)

International Food Information Council Foundation (www.foodinsight.org)

March of Dimes (www.marchofdimes.org)

Mushroom Council (www.mushroominfo.com/)

National Council Against Health Fraud (www.ncahf.org)

National Onion Association (www.onions-usa.org)

National Osteoporosis Foundation (www.nof.org)

National Potato Promotion Board (www.healthypotato.com)

National Watermelon Promotion Board (www.watermelon.org)

New England Apple Association (www.newenglandapples.org)

Northwest Cherry Growers (www.nwcherries.com)

Oregon Raspberry and Blackberry Commission (www.oregon-berries.com)

Produce for Better Health Foundation (www.pbhfoundation.org/)

Produce Marketing Association (www.pma.com)

School Meals and Team Nutrition (www.fns.usda.gov)

School Nutrition Association (www.schoolnutrition.org)

U.S. Apple Association (www.usapple.org)

U.S. Department of Agriculture Consumer Information Center Pueblo (www.pueblo.gsa.gov)

U.S. Department of Agriculture Food and Nutrition Service (www.fns.usda.gov/nutritionlink/)

U.S. Department of Agriculture Food and Nutrition Service (www.fns.usda.gov/2017-edition-accommodating-children-disabilities-school-meal-programs)

U.S. Highbush Blueberry Council (www.blueberry.org)

United Fresh Produce Association (www.unitedfresh.org)

Washington State Apple Commission (www.bestapples.com)

Wheat Foods Council (www.wheatfoods.org/)

References

American Heart Association. (2015, June 25). *Making the healthy cut: Fish, poultry and lean meats.* Retrieved from https://recipes.heart.org/articles/1055/making-the-healthy-cut-fish-poultry-and-lean-meats

Baulkman, J. (2013, November 8). *Gluten allergy not real: Specialist debunks biggest health myth.* University Herald. Retrieved from http://www.universityherald.com/articles/5457/20131108/gluten-allergy-not-real-specialist-debunks-biggest-health-myth.htm

Becker, E. (2014, May 13). *10 celiac and gluten myths busted.* Retrieved from https://www.glutenfreeandmore.com/issues/4_32/10-Celiac-and-Gluten-Myths-Busted-3728-1.html

Center for Disease Control and Prevention. (2017, May 24). *Facts about folic acid.* Retrieved from https://www.cdc.gov/ncbddd/folicacid/about.html

Dahl, M. (2013, November 7). *Allergy myths busted: Guess what you didn't know about gluten?* Retrieved from https://www.today.com/health/allergy-myths-busted-guess-what-you-didnt-know-about-gluten-8C11545200

Fruits & Veggies More Matters. (2012, February 10). *What are phytonutrients?* Retrieved from https://www.fruitsandveggiesmorematters.org/what-are-phytochemicals

Harvard Medical School. (2016, March 18). *Becoming a vegetarian.* Harvard Health Publications. Retrieved from https://www.health.harvard.edu/staying-healthy/becoming-a-vegetarian

Institute of Child Nutrition. (2017). *Meal pattern instructor's manual.* University, MS: Author.

Institute of Child Nutrition. (2015). *Nutrition 101: A taste of food and fitness (3rd Edition).* University of Mississippi: Author.

Institute of Child Nutrition. (2014). *Managing food allergies in school nutrition programs.* University of Mississippi: Author.

Kotecki, J. E. (2014). *Physical activity and health: An interactive approach (4th Edition)*. Burlington, MA: Jones & Bartlett Learning.

Lopez-Jimenea, F. (2015, May 14). *VLDL cholesterol: Is it harmful?* Retrieved from http://www.mayoclinic.org/diseases-conditions/high-blood-cholesterol/expert-answers/vldl-cholesterol/faq-20058275

Medline Plus. (2017, January 7). *Copper in diet.* Retrieved from https://medlineplus.gov/ency/article/002419.htm

Medline Plus. (2015, April 25). *Fluoride in diet.* Retrieved from https://medlineplus.gov/ency/article/002420.htm

Medline Plus. (2017, January 12). *Minerals.* Retrieved from https://medlineplus.gov/minerals.html

Medline Plus. (2017, January 7). *Vitamin b12.* Retrieved from http://medlineplus.gov/ency/article/002403.htm

Medline Plus. (2017, February 2). *Vitamins.* Retrieved from http://www.nlm.nih.gov/medlineplus/ency/article/002399.htm

National Institutes of Health. (2014, October). *Sweet stuff how sugars and sweeteners affect your health*. NIH News in Health. Retrieved from http://newsinhealth.nih.gov/issue/oct2014/feature1

National Institutes of Health. (2016, August 31). *Vitamin a.* Retrieved from http://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional/

New Zealanders Nutrition Foundation. (December 2013). *Food and nutrition in the news*: *Evaluating nutrition messages.* Retrieved from https://www.nutritionfoundation.org.nz/news-and-hot-topics/media/Food-and-Nutrition-in-the-News--Evaluating-Nutrition-Messages

Nielsen, R. (2015, May 6). *5 gluten free myths – busted.* Retrieved from http://ca-en.naturespath.com/blog/2015/05/06/5-gluten-free-myths-busted

Scialabba, N. E. (2011, September 7). *Food availability and natural resource use.* Retrieved from www.fao.org/fileadmin/user_upload/suistainability/Presentations/Availability.pdf

Sizer, F. S. & Whitney, E. N. (2017). *Nutrition*: *Concepts and controversies (14th Edition).* Boston, MA: Cengage Learning.

U. S. Department of Agriculture. (2017, April 19). Choosemyplate.gov. Retrieved from https://www.choosemyplate.gov/MyPlate

U.S. Department of Agriculture Economic Research Service. (2016, October 18). *Food Availability and Consumption.* Retrieved from https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-availability-and-consumption/

U.S. Department of Agriculture Food and Nutrition Service. (2017, July 25). *Accommodating children with disabilities in the school meal programs.* Retrieved from https://www.fns.usda.gov/2017-edition-accommodating-children-disabilities-school-meal-programs

U.S. Department of Agriculture Food and Nutrition Service. (2017, June 3). *National school lunch program (NSLP).* Retrieved from https://www.fns.usda.gov/nslp/national-school-lunch-program-nslp

U.S. Department of Agriculture Food and Nutrition Service. (2017, April 10). *School breakfast program (NSLP)*. Retrieved from https://www.fns.usda.gov/sbp/school-breakfast-program-sbp

U.S. Department of Agriculture Food and Nutrition Service. (2016, April 8). *Fluid milk substitutions in the school nutrition programs.* Retrieved from https://www.fns.usda.gov/school-meals/fr-091208

U.S. Department of Agriculture Food and Nutrition Service. (2014, January). *Whole grain resource for the national school lunch and school breakfast programs*: *A guide to meeting the whole grain-rich criteria.* Retrieved from https://www.fns.usda.gov/sites/default/files/WholeGrainResource.pdf

U.S. Department of Health and Human Services. (2015). *Dietary guidelines for americans 2015-2020.* Retrieved from http://health.gov/dietaryguidelines/2015/guidelines/

U.S. Food and Drug Administration. (2017, February 10). *How to understand and use the nutrition facts label.* Retrieved from https://www.fda.gov/Food/LabelingNutrition/ucm274593.htm

U.S. Food and Drug Administration. (2013, January). *Guidance for industry: A food labeling guide (9.appendix a: Definitions of nutrient content claims).* Retrieved from https://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064911.htm

U.S. Food and Drug Administration. (2017, June 19). *Changes to the nutrition fact label.* Retrieved from https://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/labelingnutrition/ucm385663.htm

WebMD. (2016, February 23). *Breakfast: Is it the most important meal?* Retrieved from http://www.webmd.com/food-recipes/most-important-meal#1

The University of Mississippi
School of Applied Sciences
800-321-3054
www.theicn.org