Using the print activities that have been developed for each video, encourage students to share their own personal experience, discuss timely health topics, and assess their understanding of content that is video- and lesson-specific.
Unit 4 Technology Course Manager

Teach

Direct lesson plans beyond the classroom with multi-media fitness activities that students can do online, in class, or as a group.

**PowerPoint® Presentation**
- Health eSpotlight videos
- Audio and image bank

**Fitness Zone Online**

Fitness Zone Online is a multi-media resource that helps students find ways to be physically active each day.
- Clipboard Energizer Activities
- Fitness Zone Videos
- Polar Heart Rate Monitor Activities
- Nutrition, Physical Activity, and Injury Prevention Tips
- Links to Nutrition and Physical Activity Resources

Go to glencoe.com and use the QuickPass codes found in each chapter to access
- Online Learning Center
- Interactive Study Guides
- Online Quizzes

**ExamView® Assessment Suite CD-ROM**

Create and customize tests in minutes with this convenient digital platform.
- Create differentiated tests quickly and easily.
- All questions correlated to National/State Standards.
- Enhance tests with Document Based Questions (DBQ) and add your own photos and graphics.
- Build tests in both English and Spanish.
- Generate progress reports.

Assess/Close

Help students master chapter and lesson concepts with an integrated technology solution for assessment and performance evaluation.

Go to glencoe.com and use the QuickPass codes found in each chapter to access
- Online Learning Center
- Interactive Study Guides
- Online Quizzes

**Health Podcasts Activities**

Glencoe’s “It’s Your Health” Podcast Activities provide students with a unique listening and learning experience that takes health education beyond the classroom. Download the audio files and print activities covering a range of current health topics that matter most to teens!

Enrich

Use these additional digital and online media resources to promote hands-on exploration of health topics covered in the lesson.

**Business Week Health Video Series**
- Is Fortified Food Healthier?
- The Slow Burn of Exercising
- Video Games Get You in Shape

**Study-to-Go**

Download a portable version of eFlashcards and Self-Check Quizzes onto your Palm or Pocket PC.

Podcast Audio Chapter Summaries

Use the audio Podcast Audio Chapter Summaries to teach and review key concepts, and engage students with health content that they can download to a computer or portable MP3 player.
Nutrition and Physical Activity

This unit will teach students the importance of nutrition and physical activity for good health. They will learn how to make healthful food choices, manage their weight, and improve their fitness with physical activity.

Health eSpotlight Video Series

Visit glencoe.com and explore the Health eSpotlight Video Planning Guide. Show the video to assess prior knowledge before teaching a lesson, to help your students understand the health content, or to generate class discussion. Each of the Health eSpotlight Videos is based on health skills, and each video is correlated to the National Health Education Standards. Online, printable worksheets that include a summary and activity accompany each video.

UNIT PROJECT

Raising Awareness

Using Visuals. The Susan G. Komen for the Cure is the world's largest group of breast cancer survivors and activists fighting to save lives and promote quality care for all. The organization raises funds for research into the causes and cures of breast cancer, and also funds education programs that help people learn how they can reduce their risk for this disease.

To learn more about the Susan G. Komen for Cure, use this code to go to the Unit Web Project at glencoe.com.

Get Involved. Do research to learn about organizations in your community that raise funds to fight cancer. Contact one of these organizations to find out how teens can volunteer. Share your findings with your classmates.

UNIT PROJECT

Raising Awareness

Susan G. Komen for the Cure is the global leader of the breast cancer movement. During Susan G. Komen's own battle with breast cancer, she shared with her sister her desire to make a difference, and in 1982, the organization was born. There are many ways that students can get involved too, such as organizing a local school fundraiser for one of the organizations they've researched.

Get Involved. Ask a few students to learn more about organizations in their community that raise funds to fight cancer and ways teens can volunteer. Ask them to find out who can volunteer (age) and list a contact person. Display the information in the classroom and encourage other students to read it.
How to Get Involved

Provide students with these step-by-step instructions for learning about local food-relief programs and teen volunteering opportunities:

1. Go to the Susan G. Komen for the Cure Web site and read about volunteering opportunities. Use the Web site’s locator to find a local chapter.

2. Locate other cancer-fighting programs. Search the yellow pages under cancer.

3. Contact each local chapter and ask about opportunities for teens to volunteer. Find out if there are any requirements for volunteers that might affect teens, such as minimum age or driver’s license requirements.
# Chapter 10
## Nutrition for Health

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<td>By reading food labels and handling foods safely, you can avoid many food-related health problems.</td>
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## Key to Ability Levels
- **AL** Activities for students working above grade level
- **OL** Activities for students working on grade level
- **BL** Activities for students working below grade level
- **EL** Activities for English Learners
## Chapter 10 Planning Guide

### Resources

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### Lesson Assessment

- **Chapter 10 Review**
- **Chapter 10 Assessment**
- **Standardized Test Practice**
- **ExamView® Assessment Suite CD-ROM**

### Lesson 1 Assessment, page 257
- **Lesson 1 Quiz Fast File**
- **ExamView® Assessment Suite CD-ROM**

### Lesson 2 Assessment, page 265
- **Lesson 2 Quiz Fast File**
- **ExamView® Assessment Suite CD-ROM**

### Lesson 3 Assessment, page 273
- **Lesson 3 Quiz Fast File**
- **ExamView® Assessment Suite CD-ROM**

### Lesson 4 Assessment, page 281
- **Lesson 4 Quiz Fast File**
- **ExamView® Assessment Suite CD-ROM**

### Technology

**Teaching Tools:**
- TeacherWorks™ Plus DVD
- StudentWorks™ Plus DVD
- ExamView® Assessment Suite CD-ROM
- Fitness DVD
- PowerPoint® DVD
- Health eSpotlight
- Video Series DVD

**Web-Based Resources:**
- Go to [glencoe.com](http://glencoe.com) for:
  - Health Podcast Activities
  - Audio Chapter Summaries (English/Spanish)
  - Interactive Health Tutor
  - Health Skills Activities
  - Vocabulary PuzzleMaker
  - Parent Letters (English/Spanish)
  - Lesson Plans
  - Health Inventories
  - Online Quizzes
  - Study-to-Go
  - Unit Web Projects
  - Student Web Activities
  - Fitness Zone Activities

### Foldables® Chapter Activity

Refer to the Dinah Zike Reading and Study Skills for Glencoe Health. Ask students to make a three-tab book Foldable. As students read the lesson, have them write information under the appropriate tab about how hunger and appetite, emotions, and environment influence their own food choices.

**Key to Symbols**
- CD-ROM
- glencoe.com
- Print Resources
- REVIEW activities to review or reinforce content
- TEACH activities to teach basic concepts
- EXTEND activities to extend or enrich lesson content
Reading Strategies

Reading Strategy

I. Directions

2. 3. 4. 5.

Situation A:

Situation B:

Reading Strategy

I. Directions

2. 3. 4. 5.

Situation A:

Situation B:

The Dietary Guidelines for Americans is a set of recommendations about smart eating and physical activity. Complete the concept map about the Dietary Guidelines for Americans to explain which of the foods are the most healthful.

Directions

Making Healthful Food Choices

In the spaces provided, write each term in the list after its definition.

Nutrient density

Nutrient intake

Psychological desire for food

Energy the body receives from food

Total grams of fat

Unit of heat that measures the amount of energy needed to raise the temperature of 1 kilogram of water 1 degree Celsius

Although the Dietary Guidelines for Americans is a set of recommendations about smart eating and physical activity, you can use the MyPyramid snack calculator to track your food intake for one day.

Making Healthful Food Choices

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Although the Dietary Guidelines for Americans is a set of recommendations about smart eating and physical activity, you can use the MyPyramid snack calculator to track your food intake for one day.
Nutrition for Health

Chapter Overview

Chapter 10 focuses on the role of nutrition in health. It explains how to make healthful food choices and how to handle foods safely.

Lesson 1
Choosing the right foods is important for lifelong good health. To make healthful food choices, people need to understand the many influences on food choices.

Lesson 2
The body needs six types of nutrients for good health: carbohydrates, proteins, fats, vitamins, minerals, and water. Each type of nutrient has a specific job in the body.

Lesson 3
MyPyramid can help individuals make informed food choices. Guidelines for healthful eating and physical activity include making smart choices from every food group, balancing food and activity, and getting the most nutrition out from the calories you consume.

Lesson 4
Knowing how to read nutrition labels on food packages can help you choose foods wisely. Handling food carefully can help prevent foodborne illnesses.

Activating Prior Knowledge

Call on a few volunteers to read their paragraphs to the class. Ask Students: Why are foods such as these good for your health?

Universal Access

Differentiated Learning  Glencoe provides teacher support and student materials for all learners in the health classroom.

- Chapter Summaries in English and Spanish are available online at glencoe.com.
- Fast Files and related worksheets support reluctant readers.
- Universal Access strategies throughout the Teacher Wraparound Edition and Fast Files help you present materials for gifted students, at-risk students, physically impaired students, and those with behavior disorders or learning disabilities.
Discuss the **BIG Ideas**

Think about how you would answer these questions:
- What influences your food choices?
- Are your eating habits healthful? Why or why not?

Watch the **Health eSpotlight** Video Series

The Lesson 4 video discusses the evolution of food labels. Watch the other videos to learn about the topics in this chapter.

**Assess Your Health**

Visit [glencoe.com](http://glencoe.com) and use this code to access chapter videos, Health Inventories, and other features.

**Chapter Skills**

**Reading Skills**
- Reviewing Facts and Vocabulary, pp. 257, 265, 273, 281
- Reading/Writing Practice, p. 287

**Vocabulary**
- New Vocabulary, pp. 254, 258, 266, 274
- Reviewing Facts and Vocabulary, pp. 257, 265, 273, 281

**BIG Idea**

Making nutritious food choices and handling food safely will help keep a person healthy throughout life.

**Health Skills**
- Health Skills Activity, p. 257
- Applying Health Skills, pp. 257, 265, 273, 281

**Writing Skills**
- Real World Connection, p. 270
- Writing Critically, pp. 257, 265, 273, 281
- Reading/Writing Practice, p. 287
The Importance of Nutrition

1 FOCUS

GUIDE TO READING

BIG Idea Learning to make healthful food choices will keep you healthy throughout your life.

Before You Read

Create a K-W-L Chart. Make a three-column chart. In the first column, list what you know about nutrition. In the second column, list what you want to know about this topic. As you read, use the third column to summarize what you learned.

K                  W                  L

New Vocabulary

- nutrition
- nutrients
- calorie
- hunger
- appetite

Real Life Issues

Schools can play a major role in the nutrition of teens.
Source: Centers for Disease Control and Prevention, School Health Policies and Programs Study, 2006.

Percentage of Schools That Almost Always or Always Used Healthy Foods, 2000 and 2006

<table>
<thead>
<tr>
<th>Practice</th>
<th>2000</th>
<th>2006</th>
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<tr>
<td>Used part-skim or low-fat cheese instead of regular cheese</td>
<td>31.0</td>
<td>45.9</td>
</tr>
<tr>
<td>Trimmed fat from meat or used lean meat</td>
<td>56.2</td>
<td>66.4</td>
</tr>
<tr>
<td>Removed skin from poultry or used skinless poultry</td>
<td>40.2</td>
<td>54.6</td>
</tr>
</tbody>
</table>

Writing

Write a paragraph describing why it’s important for schools to offer students healthful food choices.

Why Nutrition Matters

Main Idea The food you eat affects your health and quality of life.

Most people know what foods they like. They may not understand how the body uses food. The food you eat plays a significant role in your total health. To make healthful food choices, you must first learn about nutrition, the process by which your body takes in and uses food.

Your body relies on food to provide it with nutrients, substances in food that your body needs to grow, to repair itself, and to supply you with energy. The energy your body receives from food is measured in calories. A calorie is a unit of heat used to measure the energy your body uses and the energy it receives from food. The calories in the food you eat provide the energy your body needs for activities such as walking, doing chores, and playing sports.

Eating to Reduce Health Risks

As a voluntary project, have students ask a parent or guardian about any health problems that run in their family. They should ask specifically about any conditions related to diet, such as type 2 diabetes, cardiovascular disease, cancer, and osteoporosis. To be relevant, the conditions must occur in fairly close biological relatives, such as parents, grandparents, aunts, or uncles. Suggest that students discuss with family members how eating a variety of healthful foods lifelong can help lower their risk of developing the conditions.

Home and Community

Have students read their paragraphs and share their ideas with the class. Paragraphs will vary but might include reasons such as unavailability of healthful foods at home or obesity issues.
During your teen years, choosing the right foods in the right amounts will give your body the nutrients it needs for healthy growth and development. Healthful foods provide fuel for physical activities, help you stay mentally alert, and keep you looking and feeling your best.

Nutrition also affects your lifelong health. Eating a variety of healthful foods can help you avoid unhealthful weight gain and diseases such as type 2 diabetes. It can also lower your risk of developing other conditions that can threaten your life as you age. These include the following:

- Cardiovascular disease
- Certain cancers
- Stroke
- Osteoporosis

Main Idea

What Influences Your Food Choices?

When you make food choices, you need to understand what influences you. Did you eat oatmeal with raisins for breakfast because you like the taste? Maybe you grabbed a snack for a quick energy boost.

Hunger and Appetite

People eat for two reasons: hunger and appetite. Hunger is the natural physical drive to eat, prompted by the body's need for food. When you're hungry, you may feel tired or lightheaded. Once you satisfy your hunger, you feel better.

Appetite is the psychological desire for food. Think of how the smell of fresh-baked bread tempts you, even if you're full.

Academic Vocabulary

psychological (adjective): directed toward the mind

Figure 10.1 Several factors can influence your food choices. What might be influencing the teen in this photo?

Cooperative Learning

Evaluating Food Commercials As a homework assignment, ask students to monitor television for 30 minutes one evening. Have them write down what they will be looking for when they watch television: amount of time devoted to commercials, amount of time devoted to food commercials, foods that are advertised, and how the commercials try to "sell" the foods. Remind students to record the information. The following day, ask students to form groups to share the information they gathered and discuss whether food commercials have a positive or negative influence on them as consumers.

Cultural Awareness

Cultural Foods Point out that certain foods are popular in particular cultures, such as beans and tortillas in Hispanic cultures. Have students interview each other about cultural foods. Then ask volunteers to explain how culture influences food choices.

Caption Answer

Figure 10.1 Sample answer: They might be influenced by seeing the food choices.
LESSON 1

CHAPTER 10

Promoting School Wellness

Healthful Food Choices What influences the food choices of students in your school cafeteria? Take a close look at the cafeteria environment. Are there brightly lit vending machines promoting unhealthful food choices? Are students required to wait in long lines to get their school lunch, leaving them with little time to eat? Environmental factors such as these may have a negative influence on students’ food choices at school. Work with school administrators to address any factors that might influence students to make unhealthful food choices.

Food and Emotions

Sometimes people eat in response to an emotional need, like when they feel stressed, frustrated, lonely, or sad. In other cases, people may snack out of boredom or use food as a reward. Some people engage in “mindless eating,” which is snacking continuously while absorbed in another activity. They eat even when their body doesn’t need food.

Using food to relieve tension or boredom can lead to weight gain, since you’re eating when your body doesn’t need food. On the other hand, if you lose your appetite because you’re upset, your body may not get all the nutrients it needs. Recognizing how emotions affect your eating can help you break such patterns and reconnect your eating with real hunger.

Food and Your Environment

The people and things around you also affect what you choose to eat. Environmental influences include:

- **Family and culture.** If your family eats most meals at home, this will influence what you eat. You may prefer certain foods because of your family's cultural influence.
- **Friends.** If your friends always go for pizza after school, you'll probably eat pizza too. You might try new foods with friends, including foods from other cultures.
- **Time and money.** People with busy schedules may choose foods that are quick and easy to prepare, such as convenience foods and microwavable meals. Cost can also be a factor. For instance, you may not eat expensive steaks very often.
- **Advertising.** Advertisers try to influence your decisions about food. They hope that an ad for a juicy hamburger will send you out to the nearest fast-food window.

Answer They hope to persuade you to buy the food products they are advertising.

Reading Check

Answer They hope to persuade you to buy the food products they are advertising.

**Health Skills Activity**

Analyzing Influences: Food Choices

NHES Standard 2 Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.

Objectives

- Keep a detailed food log for one week.
- Analyze influences to make better food choices.

Teaching Strategies

- Suggest that students use a pocket-sized notebook for their food log so they can carry it with them.
- Food choices may be a sensitive subject for some students. Make sure students know they can keep their food logs and paragraphs private.

Assessment

Using this list, student work should provide comprehensive evidence of the following criteria to achieve the highest score:

- Food log is detailed and complete
- Lists at least one influence for each entry
- Identifies at least one factor that generally influences food choices
- Creates a healthy eating plan

**Fitness Zone**

I always thought that by skipping meals, I was cutting calories. Well, I was wrong. When you don’t eat, your body responds by telling your brain that you might starve so it slows your metabolism. It is much healthier to eat smaller and more frequent, healthy meals. That keeps your metabolism high and burns more calories. For more fitness tips, visit the Online Fitness Zone at glencoe.com.

**Reading Check**

Make Inferences Why do advertisers want to influence your food choices?
**Health Skills Activity**

**Analyzing Influences**

**Food Choices**

Alex couldn’t wait to get home from school the day his brother, Jeff, came home from college. When Alex got home, his brother’s car was already parked in front of the house. They talked about school for a couple of minutes before Alex said, “Jeff, Mom said you get to pick what we have for dinner. Should we order a pizza?” Jeff patted his stomach. “No pizza for me. I’ve already gained the ‘freshman 15,’” referring to the weight gain that many college freshmen experience. Jeff said that his schedule was different from when he was in high school, and he was finding it hard to start a new routine. His friends often encouraged him to eat even when he wasn’t hungry. Alex wonders how Jeff can manage his diet.

**Writing**

Pretend you are Jeff and use the following steps to create a plan analyzing the influences on your diet.

1. Keep a food diary for a week, noting what you eat, when you eat, and what influences your choices.
2. Analyze whether you’re eating because of hunger or another reason.
3. Create a healthy eating plan that you can follow.

**After You Read**

**Reviewing Facts and Vocabulary**

1. Name three health problems that good nutrition can help you avoid.
2. What is the difference between hunger and appetite?
3. Identify two emotions that influence eating when someone isn’t hungry.

**Thinking Critically**

4. Analyze. Explain how advertising can influence your food choices.
5. Evaluate. Emily can’t resist homemade chocolate-chip cookies. What is influencing her behavior? Is this influence healthy?

**Applying Health Skills**

6. **Stress Management.** Eating when you’re not hungry can be a response to stress. List three healthier ways to respond to stress.

**Writing Critically**

7. **Descriptive.** Write an essay describing two ways in which your family or friends influence your food choices.

**Real Life Issues**

After completing the lesson, review and analyze your response to the Real Life Issues question on page 254.

**LESSON 1 ASSESSMENT ANSWERS**

1. *Any three:* unhealthful weight gain, type 2 diabetes, cardiovascular disease, stroke, certain cancers, osteoporosis
2. **Hunger** is the physical drive to eat when the body needs food. **Appetite** is the psychological desire for food, not based on physical need.
3. Any two emotions, such as those mentioned in the text (e.g., stress, loneliness, boredom)
4. Answers will vary.
5. Emily’s eating is being influenced by appetite. It is not healthy because her body does not need the food and eating too much could lead to unhealthful weight gain.
6. Answers will vary.
7. Essays will vary.
Nutrients

1 FOCUS

GUIDE TO READING

BIG Idea Each nutrient in your diet plays a unique and essential role in keeping you healthy.

Before You Read Create a Cluster Chart. Draw a circle and label it “Nutrients.” Draw circles around it and use these to define and describe this term. As you read, continue filling in the chart with more details.

Ask Students: What are nutrients? (Substances in food that your body needs)

Before You Read Cluster Chart Suggest that students draw six circles and use one circle for each type of nutrient.

New Vocabulary
- carbohydrates
- fiber
- proteins
- cholesterol
- vitamins
- minerals
- osteoporosis

Main Idea
Giving Your Body What It Needs Each of the six types of nutrients plays a vital role in keeping a person healthy. Ask Students: What is one type of nutrient, and how does it keep you healthy? (Sample answer: Protein; it keeps you healthy by building strong muscles.)

Real Life Issues

Have students read the scenario. Ask Students: What conflicting advice have you heard about what to eat? (Sample answer: I heard that you should avoid eating high-fat foods, and I also heard that you should eat oily fish at least twice a week.) Before students write their journal entries, lead them in brainstorming reliable sources of health information.

Real Life Issues

Too Much (Nutrition) Information. Lately, Judy has been getting a lot of advice on what to eat—and all of it is different. First her friend Heather told her you need lots of carbohydrates and little fat. Judy’s friend, Rob, said eating certain combinations of foods is a good idea. Then Judy read a magazine article stating that eating too many carbohydrates will cause weight gain. Judy is confused by all the information. She’s beginning to feel she should just eat whatever she likes.

Writing Write a journal entry from Judy’s point of view. Have her describe how she will figure out whether the health information she’s getting is valid or not.

Giving Your Body What It Needs

Main Idea Each of the six nutrients has a specific job or vital function to keep you healthy.

Everything you eat contains nutrients. Nutrients perform specific roles in maintaining your body functions. Your body uses nutrients in many ways:

- As an energy source
- To heal, and build and repair tissue
- To sustain growth
- To help transport oxygen to cells
- To regulate body functions

There are six types of nutrients. Three of these types—carbohydrates, proteins, and fats—provide energy. The other three—vitamins, minerals, and water—perform a variety of other functions. Getting a proper balance of nutrients during the teen years can improve your health through adulthood.

More About...

Glucose Storage Excess glucose in the blood is converted to a compound called glycogen by the liver. Each molecule of glycogen consists of many glucose molecules joined together in a complex structure. Most of the glycogen is stored in the liver, but some is stored in skeletal muscles. When the blood glucose level falls, the liver breaks down its stored glycogen. Glucose is released back into the blood and carried to cells throughout the body. These two processes—the synthesis and breakdown of glycogen—work together to keep the level of glucose in the blood relatively constant, giving body cells a steady supply of energy.
Nutrients That Provide Energy

**Main Idea** Carbohydrates, proteins, and fats provide your body with energy and help maintain your body.

The energy in food comes from three sources: carbohydrates, proteins, and fats. Each gram of carbohydrate or protein provides four calories of energy, while each gram of fat provides nine calories. The body uses these nutrients to build, repair, and fuel itself.

**Carbohydrates**

Carbohydrates are starches and sugars found in foods, which provide your body’s main source of energy. Most nutrition experts recommend getting 45 to 65 percent of your daily calories from carbohydrates.

**Types of Carbohydrates** There are three types of carbohydrates: simple, complex, and fiber. Simple carbohydrates are sugars, such as fructose (found in fruits) and lactose (found in milk). Sugars occur naturally in fruits, dairy products, honey, and maple syrup. They are also added to many processed foods, such as cold cereals, bread, and bakery products.

Complex carbohydrates, or starches, are long chains of sugars linked together. Common sources include grains, grain products such as bread and pasta, beans, and root vegetables such as potatoes.

The last type of carbohydrate is fiber, a tough complex carbohydrate that the body cannot digest. Fiber moves waste through your digestive system. Eating foods high in fiber can help you feel full, and may reduce the risk of cancer, heart disease and type 2 diabetes. Experts recommend eating 20 to 35 grams of fiber per day. Good sources of fiber include fruits and vegetables, whole grains, and products made from whole grains, nuts, seeds, and legumes.

**Figure 10.3** These foods are good sources of carbohydrates. How does your body use carbohydrates?

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**ELL Support**

**Defining Main Idea Terms** The first two Main Ideas in the lesson contain important terms that may be unfamiliar to some students: **vital**, **function**, **perform**, and **maintain**. Write these terms on the board and define them, using simple, straightforward definitions, such as “needed” for **vital**, “job” for **function**, “do” for **perform**, and “keep up” for **maintain**.

- **Beginning** Have students repeat the words and their definitions.
- **Advanced** Ask students to use each word in a sentence.
- **Intermediate** Repeat the words and ask students to give their definitions.
After students have watched the video, Is Fortified Food Healthier?, divide the class into small groups. Have them decide whether fortified foods are helpful when trying to eat a healthy diet. Have students write a paragraph supporting their choice. Make sure students’ paragraphs include specific examples.

Universal Access

Using Visuals  Have students find pictures of high-protein foods in old magazines or from the Internet and use them to make posters showing foods that are good sources of protein. Part of the poster should show complete-protein foods, such as meat, eggs, and dairy products. The other part should show incomplete-protein foods, such as whole grains, nuts, and legumes. Display the posters in the classroom.

Writing Support

Writing About Analogies  Have each student select one of the roles of proteins and write a paragraph describing an analogy that helps explain this role. For example, they might write about bricks in a building as an analogy for the role of proteins as the building material of cells. Call on volunteers to read their paragraphs to the class.

The Role of Carbohydrates  Your body uses carbohydrates by breaking them down into their simplest forms. Most of the carbohydrates you consume are turned into a simple sugar called glucose, which is the main source of fuel for the body’s tissues. Glucose can be stored in your body’s tissue and used later during periods of intense activity.

Benefits of Fiber  Although the body cannot digest fiber, it still plays an important role by aiding digestion and reducing the risk of disease. Experts recommend eating 26 grams of total fiber daily for teen girls ages 14 to 18 years, and 38 grams daily for boys the same age.

Proteins  

Proteins are nutrients the body uses to build and maintain its cells and tissues. They are made up of chemicals called amino acids.

Types of Proteins  Your body uses about 20 amino acids that are found in foods. You produce, or synthesize, all but nine of the amino acids. These nine are called essential amino acids. Proteins from plant sources are usually missing one or more of the essential amino acids. However, you can get all the essential amino acids by eating a variety of plant-based foods that are rich in protein. Examples of these foods are grains, nuts, seeds, and legumes.

The Role of Proteins  Protein is the basic building material of all your body cells. Muscles, bones, skin, and internal organs are all constructed of protein. Protein helps your body grow during childhood and adolescence. Throughout your life, protein will maintain muscles, ligaments, tendons, and all body cells.

Proteins also do a variety of other jobs in the body. For example, the protein hemoglobin in your red blood cells carries oxygen to all your body cells. Proteins may also function as hormones, chemicals that regulate the activities of your various body systems. Although protein does not supply energy to your body as quickly or easily as carbohydrates do, it can be used as an energy source.

Teen boys ages 14 to 18 should consume about 52 grams of protein per day, and teen girls ages 14 to 18 need 46 grams per day. Between 10 and 15 percent of your total daily calories should come from protein.

Caption Answer

Figure 10.4  Meat, eggs, and milk
Fats

Most of what you hear about fats is how to avoid them. Does this mean you shouldn’t eat any fat at all? No. Your body needs a certain amount of fat to function properly. You can, however, choose healthier fats.

Types of Fats  Dietary fats are composed of fatty acids, which are classified as either unsaturated or saturated. Fatty acids that the body needs but cannot produce on its own are called essential fatty acids. The fat in all foods is a combination of unsaturated and saturated fats:

- **Unsaturated fats.** Vegetable oils, nuts, and seeds tend to contain larger amounts of unsaturated fats. Eating unsaturated fats in moderate amounts may lower your risk of heart disease.

- **Saturated fats.** Saturated fat is found mostly in animal-based foods such as meat and many dairy products. A few plant oils (palm, coconut, and palm kernel) also contain a lot of saturated fats. Consuming too many saturated fats may increase your risk of heart disease.

- **Trans fats.** These fats are formed by a process called hydrogenation, which causes vegetable oil to harden. As it hardens, the fats become more saturated. Trans fats can be found in stick margarine, many snack foods, and packaged baked goods, such as cookies and crackers. Trans fats can raise your total blood cholesterol level, which increases your risk for heart disease. As a result of the risk of trans fats, the USDA now requires that the amount of trans fats be listed on the nutrition label. Some cities have passed laws limiting or eliminating the use of trans fats in foods prepared in restaurants.

Health Issues of Fats  Your body needs a certain amount of fat to carry out its basic functions, however, consuming too much fat can be harmful. Because fatty foods are generally high in calories, consuming a lot of them can lead to unhealthful weight gain and obesity.

The Role of Fats  Fats provide a concentrated form of energy. The essential fatty acids are also important to brain development, blood clotting, and controlling inflammation. They also help maintain healthy skin and hair. Fats also absorb and transport fat-soluble vitamins (A, D, E, and K) through the bloodstream.

| Figure 10.5 Olive oil is a good source of healthful, unsaturated fat. Why are unsaturated fats better for your health than saturated fats? | Universal Access

Reinforcing Facts  Have students write questions about fats on the front of index cards and the answers on the back. Show them how to form questions by selecting and rephrasing topic sentences and other important statements in the lesson. Then ask students to choose partners and quiz each other with their cards.

Reading Strategy

Using Graphic Organizers

Work with students to create a graphic organizer, such as a spider diagram, to organize and summarize the information on types of fats. The graphic organizer might show the types of fats, their risks or benefits, and the foods in which they are found.

Caption Answer

Figure 10.5  Unsaturated fats are better for health because they may help decrease the risk of heart disease; saturated fats may increase the risk of heart disease.

Reading Strategy

Visualizing What You Read  Some students can better understand and remember information when they visualize what they are reading about. Have students create visuals, such as simple sketches with labels, to summarize what they learn when they read about proteins. For example, students might sketch and label a chain-like structure to show that proteins are made up of linked amino acids. They might draw pictures of foods, such as meat, eggs, and nuts, to show that these foods are good sources of proteins. Have students explain to partners what their visuals mean. If students have trouble remembering details, they should review the relevant information in the text.
Health Skills Practice

**Advocacy** Have students find a food product, such as margarine, that contains trans fats. Then have them write a letter to the company that makes the product, urging the company to stop using trans fats in its product. Students’ letters should describe the negative health effects of trans fats and be persuasive.

**Other Types of Nutrients**

**Vitamins, minerals, and water do not provide energy, but perform a wide variety of body functions.**

Some nutrients do not supply calories but are still necessary for carrying out various body functions. These include vitamins, minerals, and water. Each vitamin and mineral performs a different function in the body.

**Vitamins**

- **are compounds found in food that help regulate many body processes.** There are several different vitamins that perform different functions in the body. (See Figure 10.6 on page 263.)

  - Vitamin C, folic acid, and the B vitamins are water soluble, meaning they dissolve in water and pass easily into the bloodstream during digestion. The body doesn’t store these vitamins; any unused amounts are removed by the kidneys. The fat-soluble vitamins (A, D, E, and K), by contrast, are stored in body fat for later use. If consumed in large amounts, these vitamins can build up in the body to the point where they become harmful.

**Minerals**

- **are elements found in food that are used by the body.** Because your body cannot produce minerals, it must get them from food. Figure 10.7 on page 264 lists some of the minerals your body needs and how it uses them.

**Main Idea**

**Other Types of Nutrients**

Vitamins, minerals, and water do not provide energy but perform many important body functions.

**Ask Students:** What is one vitamin and one mineral, and what are their roles in the body? (Sample answer: Vitamin C helps prevent colds; calcium helps build strong bones.)

**Fitness Zone**

This activity links actual movement with the material learned in the lesson.

- Have students find a partner.
- One person recaps 5 important pieces of information from the lesson.
- Their partner must make up an action that goes along with each piece.
- For example: Carbohydrates = energy. Student can run in place.

**Do Teens Need Vitamin Supplements?**

Teens who regularly choose a variety of healthful foods generally do not need vitamin supplements. Some teens who consistently make poor food choices may benefit from supplements. They should check with their doctor first, however. Ingesting too much of some vitamins can be harmful. Even water-soluble vitamins, such as vitamin C, may cause health problems when taken in excess. Some vitamins also interact with medications. For example, the oral acne drug isotretinoin is a derivative of vitamin A. Taking vitamin A supplements while taking isotretinoin can lead to harmful levels of vitamin A building up in the body.

**Main Idea**

**Other Types of Nutrients**

Vitamins, minerals, and water do not provide energy, but perform a wide variety of body functions.

Some nutrients do not supply calories but are still necessary for carrying out various body functions. These include vitamins, minerals, and water. Each vitamin and mineral performs a different function in the body.

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**Minerals**

- **are elements found in food that are used by the body.** Because your body cannot produce minerals, it must get them from food. Figure 10.7 on page 264 lists some of the minerals your body needs and how it uses them.
Vitamins in yellow boxes are fat soluble. Those in blue boxes are water soluble.

<table>
<thead>
<tr>
<th>Vitamin/Amount Needed Per Day by Teens Ages 14 to 18</th>
<th>Role in Body</th>
<th>Food Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fat-Soluble Vitamins</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (A)</td>
<td>needed for night vision; stimulates production of white blood cells; regulates cell growth and division; helps repair bones and tissues; aids immunity; maintains healthy skin and mucous membranes</td>
<td>carrots, sweet potatoes, tomatoes, fortified cereals, leafy green vegetables, fish, liver, fortified dairy products, egg yolks</td>
</tr>
<tr>
<td>D (Vitamin D)</td>
<td>helps body use calcium and phosphorus (needed for building bones); aids immune function; helps regulate cell growth</td>
<td>fortified cereals and dairy products, fatty fish such as salmon and tuna. (Note: Your skin naturally produces vitamin D when exposed to sunlight.)</td>
</tr>
<tr>
<td>E</td>
<td>protects cells from damage; aids blood flow; helps repair body tissues</td>
<td>fish, milk, egg yolks, vegetable oils, fruits, nuts, peas, beans, broccoli, spinach, fortified cereals</td>
</tr>
<tr>
<td>K</td>
<td>essential for blood clotting, aids bone formation</td>
<td>green leafy vegetables, vegetable oils, cheese, broccoli, tomatoes</td>
</tr>
<tr>
<td><strong>Water-Soluble Vitamins</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1 (Thiamine)</td>
<td>helps the body use carbohydrates for energy; promotes health of nervous system</td>
<td>enriched and whole-grain cereal products, lean pork, liver</td>
</tr>
<tr>
<td>B2 (Riboflavin)</td>
<td>helps the body process carbohydrates, proteins, and fats; helps maintain healthy skin and tissues</td>
<td>lean beef, pork, organ meats, legumes, eggs, cheese, milk, nuts, enriched grain products</td>
</tr>
<tr>
<td>B3 (Niacin)</td>
<td>helps body process proteins and fats; maintains health of skin, nervous system, and digestive system</td>
<td>liver, poultry, fish, beef, peanuts, beans, enriched grain products</td>
</tr>
<tr>
<td>B6 (Pantothenic Acid)</td>
<td>helps body use proteins and fats; supports immune and nervous systems; helps blood carry oxygen to body tissues; helps break down copper and iron; prevents one type of anemia; helps maintain normal blood sugar levels</td>
<td>organ meats, pork, beef, poultry, fish, eggs, peanuts, bananas, carrots, fortified cereals, whole grains</td>
</tr>
<tr>
<td>B12 (Cobalamin)</td>
<td>maintains healthy nerve cells and red blood cells; needed for formation of genetic material in cells; prevents one type of anemia</td>
<td>liver, fish, poultry, clams, sardines, flounder, herring, eggs, milk, other dairy foods, fortified cereals</td>
</tr>
<tr>
<td>C (Ascorbic Acid)</td>
<td>protects against infection; promotes healthy bones, teeth, gums, and blood vessels; helps form connective tissue; helps heal wounds</td>
<td>citrus fruits and juices, berries, peppers, tomatoes, broccoli, spinach, potatoes</td>
</tr>
<tr>
<td>Folate (Folic Acid)</td>
<td>helps body form and maintain new cells; reduces risk of birth defects</td>
<td>dark green leafy vegetables, dry beans and peas, oranges, fortified cereals and other grain products</td>
</tr>
</tbody>
</table>

Lesson 2 Nutrients 263

**Reading Strategy**

**Using Visuals** Ask students which three vitamins listed in Figure 10.6 help maintain healthy skin. (vitamins A, B2, and B3.) Ask which vitamin listed in the figure is needed for blood clotting. (vitamin K)

**Critical Thinking**

**Inferring** Call students’ attention to the recommended amounts of vitamins for teen boys and girls in Figure 10.6. Ask students why teen boys need larger amounts of most vitamins than teen girls. (Sample answer: Because teen boys are typically bigger than teen girls)

**Active Learning**

**Evaluating Vitamin Supplements** Bring in two or three different kinds of vitamin supplements. Divide the class into small groups. Ask each group to compare the amounts of vitamins provided by the different vitamin supplements with the amounts needed by teens, as shown in Figure 10.6. Give groups a chance to share and discuss their findings. Ask students to find out whether there are any vitamin supplements formulated specifically for teens.

**Writing Strategy**

**Expository Writing** Tell students to assume that they have a younger friend or relative who eats a high-fat diet. Ask them to write a letter to the hypothetical young person, in which they explain the health risks associated with fats. In their letters, students should provide simple descriptions of the different types of fats and straightforward explanations of how they affect health. For the clearest expository writing, advise students to avoid the use of passive voice, overly long or complex sentences, and scientific terminology.
Tell students that many communities add the mineral fluoride to drinking water because it helps prevent cavities. However, some people are concerned that fluoride in drinking water might cause health problems, such as certain types of cancer. Have students find out whether their community has fluoridated drinking water. A parent or guardian may know, or they can contact the local water department to find out. Then ask students to interview adult family members about their views on water fluoridation. Are they aware of the benefits and possible risks? Do they think the benefits outweigh the possible risks?
Teen girls need about 9 cups of fluids a day, and teen boys need about 13 cups each day. About 20 percent of your total daily water intake comes from the foods you eat, since all foods contain some water. In most cases, drinking fluids with your meals and any other time you feel thirsty will supply your body with all the water it needs.

If you are very active, however, you will need to drink even more water to replace what your body loses when you sweat. Make sure to drink extra water before, during, and after exercise, even if you are not feeling thirsty. One important point to remember: if you feel thirsty, you waited too long to take in fluids. You should also drink extra fluids in hot weather to prevent dehydration. Limit your consumption of coffee, tea, and soft drinks that contain caffeine. Caffeine is a substance that eliminates water from your body, so caffeinated drinks can actually make you dehydrated.

Figure 10.8 Water is essential for just about every function in your body. When should you make sure to drink extra water?
GUIDE TO READING
BIG Idea MyPyramid is a tool that can help you choose healthful foods for all your meals and snacks.

Before You Read Create an Outline. Preview this lesson by scanning the pages. Organize the headings and subheadings into an outline. As you read, fill in your outline with important details.

I. 
A. 
1. 
2. 
B. 
II. 

New Vocabulary
- Dietary Guidelines for Americans
- MyPyramid
- nutrient-dense

Healthy Food Guidelines

Real Life Issues

No Time for Breakfast. Ever since she started high school, Tina never seems to have enough time for breakfast. Homework keeps her up late, so when she wakes up the next morning, she barely has time to get dressed and catch the bus. Most mornings in class, she feels weak and sluggish, and by lunchtime she’s ravenous. Tina wants to find the time to eat breakfast so she has more energy throughout the day.

Writing Pretend you are Tina. In a paragraph, write out a plan to fit breakfast into your busy schedule.

Guidelines for Eating Right and Active Living

Main Idea MyPyramid helps you apply what you know about nutrients to choose healthful foods.

The Dietary Guidelines for Americans are a set of recommendations about smart eating and physical activity for all Americans. These guidelines, published by the U.S. Department of Agriculture (USDA) and the Department of Health and Human Services (HHS), provide science-based advice for healthful eating. The guidelines also provide information on the importance of active living. This advice can be summed up in three key guidelines:

- Make smart choices from every food group.
- Find your balance between food and activity.
- Get the most nutrition out of your calories.

Promoting School Wellness

Preventing Childhood Obesity Schools can play an important role in reversing the childhood obesity epidemic by helping students adopt healthful eating habits. One way schools can help is to ensure that students have appealing, nutritious food (and beverage) choices available outside of the school meals program—for example, in vending machines, at concession stands, and for class parties. Some schools have adopted policies to ensure that these foods are healthful. Find out if your school has such a policy. If it does, see whether the policy is being followed, and remind others to follow the policy if necessary. If your school does not have such a policy, work with other concerned staff to promote the development and implementation of one.
Making Smart Choices

Choosing a variety of foods from each food group will provide all the nutrients your body needs. There are five major food groups: Grains, vegetables, fruits, milk, meats and beans.

MyPyramid Use MyPyramid—an interactive guide to healthful eating and active living—shown in Figure 10.9, to choose foods from all five of the food groups. MyPyramid helps you put the Dietary Guidelines into action.

Each of the colored bands that run from the tip of the pyramid to the base represents a different food group. The bands differ in width, indicating which foods you need more of than others. The yellow band is for oils, which are not one of the basic food groups. The MyPyramid Web site offers advice on how to choose healthful food sources for the fats you eat.

MyPyramid

Each band in MyPyramid stands for a different food group. Why is the yellow band the narrowest?

Academic Integration

Science Remind students that calories measure the amount of energy in food. Then explain how body cells obtain and use that energy. During digestion, food molecules are broken down into simpler molecules. For example, starches are broken down into sugars, including glucose, which provides the fuel for most cells. Each glucose molecule consists of many carbon, hydrogen, and oxygen atoms that are held together by chemical bonds. The energy in glucose is stored in these chemical bonds. When the bonds are broken, during a process called cellular respiration, the energy is released and stored temporarily in another molecule, referred to as ATP. Molecules of ATP store the energy in amounts that are just right for powering cell functions.
Health Skills Practice

Decision Making  Write the six decision-making steps on the board, and ask students to write each step on an index card. On the back of each card, they should apply that step to choosing the most healthful food in the food group. For example, on the back of the first card (state the situation), they might write “I want to choose the most healthful food in the grains group.” On the back of the second card, they should list several options, such as cereals and breads. In a similar fashion, students should work through and write down the remaining steps to arrive at a decision.

Writing Support

Rap Writing  Ask interested students to work together to write a rap about the dietary guidelines for choosing healthful foods within each food group. Their rap should include all six recommendations listed on this page.

Critical Thinking

Applying  Tell students that they don’t need to visit a farmer’s market to find fresh fruits and vegetables. These foods are also available in the produce section of most food stores and supermarkets. Ask students where else in a supermarket they might find fruits and vegetables. (Sample answers: canned food aisle, freezer section, health food section)

Teens Want to Know

How Many Calories Do I Need?  For a rough estimate of their caloric needs, students can multiply their weight in pounds by the average number of calories burned per pound at their level of activity. Calories burned per pound range from about 12 for someone completely inactive to 20 for someone extremely active. For example, a very active, 130-pound teen might burn 18 calories per pound and need about 2,340 calories a day (130 pounds × 18 calories per pound). An inactive teen of the same weight might burn only 14 calories per pound and need only 1,820 calories a day (130 pounds × 14 calories per pound). If students do these calculations using their own weight and different activity levels, they will see clearly why food must be balanced with physical activity.
• Go lean with protein. Choose lean meats and poultry. Prepare them by grilling, baking, or broiling. Proteins, or any foods, that are prepared by frying in oil will add extra fat to your diet. This can increase the risk of overweight and obesity. Also, try getting more of your protein from fish, beans, peas, nuts, and seeds.

• Limit certain foods. Avoid foods that are high in fat—especially saturated fats and trans fats. Also, limit foods with salt and added sugars. Remember, it’s okay to occasionally enjoy a few foods that are high in sugar, salt, or fat. If you enjoy eating a sweet snack each day, you can use physical activity to burn the extra calories.

Balancing Food and Physical Activity

Even if you eat the right amount and mix of healthful foods, you can still be overweight if you aren’t getting enough physical activity. The MyPyramid guidelines recommend that everyone balance the energy in the foods with regular physical activity.

The guidelines recommend that teens should be physically active for 60 minutes almost every day to avoid unhealthy weight gain.

Getting the Most Nutrition Out of Your Calories

Every day your body needs a certain number of calories, depending on your age, your gender, and activity level. If you choose to spend your entire day’s calorie needs with a single high-calorie fast-food meal, you may get the right amount of calories, but probably won’t get the variety of nutrients your body needs. To make sure you get enough nutrients out of the foods you eat, choose nutrient-dense foods. These foods have a high ratio of nutrients to calories.

The more nutrient dense a food is, the more nutrients it packs into a given number of calories. For example, single large carrot and a half ounce of potato chips have about the same number of calories, but the carrot is higher in nutrients. By eating more carrots and fewer potato chips, you will get more nutrients out of the same number of calories.

This doesn’t mean that you have to give up all your favorite high-calorie foods. Any food that supplies calories and nutrients can be part of a healthful eating plan. You can plan to include them into your daily eating plan along with healthful, nutrient-dense foods. For example, try eating a small serving of potato chips with a lean, nutritious turkey sandwich with lettuce and tomato and some carrot or celery sticks. If your overall diet is nutrient dense, your eating plan can include an occasional treat.

Cooperative Learning

Creating Visuals  Divide the class into six groups. Tell students that they will be representing the Dietary Guidelines recommendations for choosing the most healthful foods within a food group. Ask the groups to make a visual representation of their assigned guideline. Encourage students to be creative. For example, for the guideline...
Make sure students know the serving sizes of the different types of food in MyPyramid. You can use objects to represent serving sizes for different types of foods. For example, one medium fruit is about the size of a baseball. Students might find that they are not eating enough of some foods, such as fruits and vegetables, or that they are eating too much of other foods, such as fried foods.

**Main Idea**

**Healthful Eating Patterns** The Dietary Guidelines and MyPyramid are flexible enough to allow a variety of healthful eating patterns. 

**Ask Students:** What is your idea of a nutritious meal? (Meals will vary but should include a variety of low-fat foods from all or most food groups. Try to get a diversity of responses.)

**HS Health Skills Practice**

**Practicing Healthful Behaviors** Have each student find out his or her daily requirements of foods from each food group at the MyPyramid Web site. Then have students use the information to create an eating plan for a day’s worth of meals and snacks. The plan should incorporate the correct number of servings from each food group. Remind students to choose primarily nutrient-dense foods.

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**Evaluate Your Eating Habits**

“You are what you eat” is a common way of saying that your eating habits are important for your well-being. A diet that includes too much or too little of certain foods can affect your health now and in the future. The USDA’s MyPyramid Web site provides credible information about the dietary guidelines and how to get the nutrients you need. Keeping track of what you eat for a week can help you analyze your nutrient needs and make adjustments to your diet. Also, on the MyPyramid Web site, you can create an eating plan based on your individual needs.

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**Healthful Eating Patterns**

You can use MyPyramid and the information in the Dietary Guidelines to plan all your meals and snacks.

Do you like to sit down to three meals a day, or do you prefer to eat six or more smaller meals throughout the day? MyPyramid is flexible enough to adapt to just about any eating style. Some teens find it hard to make healthful choices in certain situations, such as breakfast time, eating on the go, or dining out. With a little planning, however, you can find ways to fit nutritious foods into any lifestyle.

Some people have trouble figuring out how to apply the Dietary Guidelines and MyPyramid to their daily eating plan. One tool that can help is the plate diagram. With this tool, you can visualize how a healthful meal might look on your plate. **Figure 10.11** shows a plate diagram for one lunch or dinner. For breakfast, you might leave out the vegetables and high-protein foods and put the starchy food center stage. The colors on the plate match the colors on MyPyramid. For example, orange represents grains, green shows a serving of vegetables, red is fruit, purple is for protein. Milk or other dairy products are shown in the glass.

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**Health Benefits of Breakfast** The importance of eating a healthful breakfast cannot be overemphasized. In addition to the health benefits listed on this page, people who eat healthful breakfasts tend to have overall higher intakes of nutrients, such as vitamins, and lower intakes of fats. They also tend to have lower blood levels of cholesterol, which may reduce their risk of heart disease. Not surprisingly, regular breakfast eaters live longer, on average, than people who do not eat breakfast.
Starting the Day Off Right

It’s Monday morning, you’ve overslept, and you have just 20 minutes to get yourself out of bed and out the door. When you’re hurried, it can be tempting to skip breakfast. However, you may pay the price later, when your stomach starts growling in the middle of a class. After eight hours of sleep, your body needs to refuel. If you force it to keep going, you will likely run short on energy.

Eating breakfast has many benefits for kids and teens. For example, children who eat breakfast typically do better in school and are less likely to be overweight. You may find it easier to fit breakfast into your schedule if you do some of the prep work the night before. For instance, you can set the table for breakfast before you go to bed. That way, all you have to do in the morning is fill your cereal bowl or put the bread in the toaster. Other ideas for quick and easy breakfasts are instant oatmeal or grits, hard-cooked eggs (which can be cooked the night before), and whole-grain muffins.

Cooperative Learning

Planning Healthful Breakfasts  Ask groups of students to apply the plate diagram concept to choosing healthful breakfasts. They should sketch a plate containing several healthful breakfast foods representing the different food groups in the correct proportions. Have students try to incorporate breakfast alternatives that are appealing, nutrient dense, and convenient. Give groups a chance to share their ideas. Point out any food choices that should be avoided in a healthful breakfast because they are high in fats, salt, or added sugars. On a bulletin board, display the sketches that show the most healthful breakfasts.

Critical Thinking

Inferring  It may seem counter-intuitive to some students that children who regularly eat breakfast are less likely to be overweight than children who do not eat breakfast. Ask students how eating breakfast can help prevent overeating. (When you eat breakfast, you might be less likely to snack between meals or to overeat at lunch, so you may eat less overall.)
Advocacy  Ask groups of students to create brochures about the health benefits of eating breakfast and how to choose nutritious breakfast foods. Arrange for student volunteers to set up a table in the cafeteria to display the brochures. The volunteers should also be available during lunch periods to answer any questions other students might have. If possible, provide samples of healthful breakfast foods for other students to try.

If you simply don’t care for traditional breakfast foods, there are plenty of other choices for starting your day off right. For instance, try a whole-grain bagel or toast with peanut butter or melted cheese. A breakfast burrito (eggs, cheese, and salsa on a tortilla) can also be a quick and healthy alternative. Another healthy choice may be to reheat last night’s leftover spaghetti for breakfast.

Sensible Snacks  

Healthful snacks can give you energy to keep you going between meals. Enjoying a sensible snack after school, for instance, can keep you from coming to the dinner table so hungry that you eat twice as much as you should. There are plenty of healthful foods that you can easily enjoy when you need a quick bite:

- Fresh fruit
- Cut-up vegetables, such as celery or carrot sticks
- String cheese
- Unsalted nuts
- Air-popped popcorn
- Fat-free yogurt
- Bread sticks

Interpersonal Skills  Ask students to assume that they are teachers in a preschool. The board of directors of the preschool wants to save money by providing the children with inexpensive snacks, such as cookies and sweetened drinks. Have students take the position that nutritious snacks, such as fresh fruits and raw vegetables, should be provided instead, regardless of the extra cost. Then ask students to prepare a presentation to the board of directors in which they state and argue for their position. In their presentation, they should explain why their position is more ethical than the board’s position. Give students a chance to deliver their presentations to the class.
Eating Right When Eating Out

Making healthful food choices is just as important when you eat away from home. With a little effort, you can find the most healthful, nutrient-dense items on the menu. Here are a few tips to keep in mind:

- **Watch portion sizes.** Restaurant meals have grown larger over the years. If you think the serving size is more than you need, try splitting the meal with a friend or wrapping up the leftovers to take home.

- **Pay attention to how foods are prepared.** Anything fried is likely to be high in fat. Grilled, baked, and broiled foods are healthier choices.

- **Add fresh vegetables and fruits.** The salad bar can be a health-conscious eater’s best friend. If the restaurant doesn’t have one, order a salad off the menu or ask the server to provide extra lettuce and tomato for your sandwich.

- **Go easy on toppings.** High-fat sauces, mayonnaise, butter, and sour cream add fat and calories to a dish. You can make your meal lighter by asking the restaurant to leave these out or serve them on the side.

- **Don’t drink your calories.** Choose water instead of soft drinks to satisfy your thirst without adding extra calories to your meal.

After You Read

Reviewing Facts and Vocabulary

1. What are the five basic food groups?
2. What kinds of foods are best to avoid or limit?
3. Provide two examples of nutrient-dense foods.

Thinking Critically

4. **Analyze.** The Dietary Guidelines recommend regular physical activity. Why is this recommendation made?
5. **Synthesize.** Josh ate a cheeseburger, fries, and a soda for lunch. List the foods he could choose for dinner to balance out his lunch.

Applying Health Skills

6. **Accessing Information.** Search for information from credible sources that provide meal planning based on MyPyramid.

Writing Critically

7. **Expository.** Write a description of a meal you had recently. Discuss what foods or cooking methods made this meal healthful or unhealthful.

**Real Life Issues**

After completing the lesson, review and analyze your response to the Real Life Issues question on page 266.

**LESSON 3 ASSESSMENT ANSWERS**

1. Grains, vegetables, fruits, milk, and meat and beans
2. Foods high in fats (especially saturated fats and trans fats), salt, and added sugars
3. Sample answers: Low-fat milk, steamed vegetables
4. To maintain a healthy weight, you need to balance the energy in the foods you eat with regular physical activity.
5. Answers will vary.
6. Answers will vary. Make sure students have accessed the most recent version of the Dietary Guidelines for Americans, because the guidelines are updated every five years.
7. Meals will vary, but students’ assessments of what made the meals healthful or unhealthful should reflect a correct understanding of nutrients and nutrient needs.

**Progress Monitoring**

**Reteaching**

Ask students to close their books and try to draw a pencil sketch of MyPyramid. Students’ pyramids should have five vertical bands, each labeled with one of the five food groups. Have students compare their sketches with Figure 10.9 and correct any errors.

**Enrichment**

Challenge students to create a game based on the Dietary Guidelines for Americans. The game should require players to correctly apply the guidelines to make healthful food choices. Students can teach their game to the class.

Have students visit [glencoe.com](http://glencoe.com) and use this code to complete the Interactive Study Guide for this lesson.
Nutrition Labels and Food Safety

FOCUS

BIG IDEA It’s possible to prevent many health problems associated with food by reading food labels and handling foods safely. Ask Students: Aside from excess weight, what other health problems are associated with food? (Sample answer: Food poisoning and food allergies)

Before You Read

Graphic Organizer Students’ graphic organizers should include enough details to show that they understand the tips for keeping food safe.

Main Idea

Nutrition Label Basics Food labels provide essential information. Ask Students: Do you ever read food labels? If so, what information do you look for? (Sample answers: Number of calories or grams of fat)

New Vocabulary

- food additives
- foodborne illness
- pasteurization
- cross-contamination
- food allergy
- food intolerance

Real Life Issues

Have students read the scenario. Ask Students: Why can’t Alex just avoid any nuts he might find in the foods, rather than make such a big deal of it? (Sample answers: The nuts might be ground up so he wouldn’t be able to avoid them.)

Teens Want to Know

Are Aspartame and Olestra Safe? If students are wondering whether aspartame and olestra are safe, this information may help them decide.

- Most of the safety concerns about aspartame—for example, that it causes brain tumors or other cancers—have been laid to rest by numerous recent studies. There is still concern that aspartame may increase the risk of seizures in people with epilepsy, but this is unlikely when aspartame is consumed in recommended amounts.
- Olestra has been shown to prevent the absorption of fat-soluble vitamins. However, these vitamins are added to foods containing olestra, so there is no net effect on vitamin levels.
Food Additives  Some foods contain food additives, substances added to a food to produce a desired effect. Food additives may be used to keep a food safe for a longer period of time, to boost its nutrient content, or to improve its taste, texture, or appearance. Two food additives that concern some experts are aspartame, a sugar substitute, and olestra, a fat substitute. Many diet soft drinks are sweetened with aspartame. Some potato chips are made with olestra, which passes through the body undigested. Because olestra is not absorbed, some people experience gastrointestinal problems when eating it.

Nutrition Facts

The Nutrition Facts panel provides information about the nutrients found in the food. See Figure 10.14 on page 276 for an example of a Nutrition Facts panel and the information it contains.

Nutritional Claims

Along with information about specific nutrients, food labels make other types of claims about nutritional value. Federal law gives uniform definitions for the following terms:

- Free. The food contains none, or an insignificant amount, of a given component: fat, sugar, saturated fat, trans fat, cholesterol, sodium, or calories. For instance, foods labeled as being “calorie-free” must have fewer than five calories per serving.
- Low. You can eat this food regularly without exceeding your daily limits for fat, saturated fat, cholesterol, sodium, or calories. Low-fat foods, for instance, must have three grams or less of fat per serving.
- Light. A food labeled as “light” must contain one-third fewer calories, one-half the fat, or one-half the sodium of the original version. On some packages, light may refer only to the color of the food, such as light brown sugar.

READING CHECK

**Explain**: Why are additives used in foods?

**Answer**: To keep foods safe to eat longer, boost their nutrient content, or improve their taste, texture, or appearance.

Health Skills Practice

**Accessing Information** Check that students can correctly access information in the food label in Figure 10.14 on page 276. Have them find specific nutrition facts, such as serving size, number of calories per serving, and grams of fat per serving. Ask students what percent of the Daily Value of carbohydrates the food provides. (8 percent) Remind them that the Daily Value is based on 2,000 calories per day.

Active Learning

**Creating Nutrition Facts Panels** Challenge groups of students to create Nutrition Facts panels for fictitious food products, using the Nutrition Facts panel in Figure 10.14 as a guide. Then have groups exchange and check each other’s panels. The panels should contain all of the required information and be realistic for the types of food represented.

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**Teacher to Teacher**

Colette Dux • El Camino Real High School, Woodland Hills, CA

**Reading Food Labels** To practice reading food labels, I have students bring in food labels from various sources. In groups, students analyze three to four labels based on serving size, number of servings per container, number of calories per serving, the amount and type of fat per serving, protein, carbohydrates (fiber, sugar), and the amount of sodium and cholesterol. Based on what students know about the RDAs and the Dietary Guidelines for Americans, students are to compare their foods and present to the class which are the most/least healthy choices.
Critical Thinking
Evaluating  Guide students in evaluating the terms used in nutritional claims. Ask students to research which food has less fat: a food that is “low” in fat or a food that is “reduced” in fat. (It depends on the food. A low-fat food has no more than 3 grams of fat per serving, whereas a reduced fat food has 25 percent less fat than the original version.)

Writing Support
Descriptive Writing  Ask students to write an advertisement for a hypothetical new version of an established food product. Tell them that the new food has 3 grams of fat, no saturated fat or cholesterol, half the sodium of the original food, 20 percent of the Daily Value for fiber, and 10 percent of the Daily Value for protein. Their advertisements should include all the relevant nutritional claims that are defined on this page. (Students’ ads should include the claims: low fat, light in sodium, high in fiber, good source of protein, and healthy.)

QuickPass  Have students visit glencoe.com and use this code to complete the Student Web Activity on reading and understanding the Nutrition Facts panels.

Caption Answer
Figure 10.14  Consumers need this information to choose foods that provide the nutrients they need and to avoid foods with excess fats, salt, or added sugars.

Health Literacy
Cracking Code Dating  An important aspect of health literacy is knowing how to access the information you need to make healthful decisions. To make healthful decisions about food, consumers may need to know how to interpret code dates on food packages. Consumers can contact manufacturers of food products for assistance in translating code numbers to calendar dates. Code dates are typically pack dates, so consumers also need to know the shelf life of different types of products. For example, high-acid canned foods, such as tomatoes, have a shelf life of 12–18 months, whereas most other canned foods have a shelf life of 2–5 years. Consider a can of tuna fish that was packed on November 21, 2008, and has a shelf life of three years. It should be used by November 21, 2011.
Organic Food Labels

In addition to nutritional claims, you may see one other notation on a food label: “USDA Organic.” Foods labeled as organic are produced without the use of certain agricultural chemicals, such as synthetic fertilizers or pesticides. As well as not containing synthetic fertilizers or pesticides, these foods cannot contain genetically modified ingredients or be subjected to certain types of radiation. The USDA Organic label makes no claims, however, that organic foods are safer or more nutritious than conventionally grown foods.

Open Dating

Many food products have open dates on their labels. These dates help you determine how long the food will remain fresh. There are several types of open dates:

- **Sell by dates** show the last day on which a store should sell a product. After this date, the freshness of a food is not guaranteed.
- **Use by or expiration dates** show the last day on which a product’s quality can be guaranteed. For a short time, most foods are still safe to eat after this date.
- **Freshness dates** appear on items with a short shelf life, such as baked goods. They show the last date on which a product is considered fresh.
- **Pack dates** show the day on which a food was processed or packaged. The pack date does not give the consumer an indication of the product’s freshness.

Academic Vocabulary

**item** (noun): an object of concern or interest

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**ELL Support**

Multiple-Meaning Words  Point out that several of the words used to make nutritional claims have more than one meaning.

- **Beginning** Use the word free in two sentences, one for each meaning of the word. Have students identify which meaning is intended in each sentence.
- **Intermediate** Ask students to identify other nutritional claim words that have more than one meaning. (low, light, high)
- **Advanced** Have students use these other words in sentences that demonstrate their multiple meanings.

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**Caption Answer**

**Figure 10.15** They might think that organic foods are safer than foods produced with chemicals such as pesticides.
Main Idea

Food Safety  Foodborne illness, or food poisoning, can be prevented by safe handling of food. Ask Students: What are symptoms of food poisoning? (Nausea, vomiting, cramping, diarrhea, fever)

Critical Thinking

Inferring  Point out that not all foodborne illnesses are caused by pathogens in food. Some are caused by poisons in certain mushrooms or plants. Ask students how this type of foodborne illness is prevented. (By avoiding the mushrooms or plants)

Reading Strategy

Using Graphic Organizers  On the board, create a simple flow chart to help students understand how foodborne illnesses spread. The chart should show the spread of pathogens from unwashed hands to food, and then from the food to the people who eat it. Call on a student to modify the flow chart to show how hand washing could interrupt the spread of pathogens in this way.

Food Safety

Main Idea  Handling food carefully can help you avoid foodborne illnesses and other hazards.

Have you ever seen a sign in a restaurant restroom reminding employees to wash their hands before returning to work? This restaurant policy helps prevent the spread of pathogens that can cause illness. It is one strategy for preventing foodborne illness, or food poisoning. About 76 million Americans become ill as a result of foodborne illnesses each year.

Foods can contain pathogens, or disease-causing organisms. Sometimes the pathogens produce disease. In other cases, it’s the poisons that pathogens produce that cause illness. Some foods, such as certain mushrooms, that don’t contain pathogens can still contain or produce poisonous chemicals. To protect yourself against foodborne illnesses learn what causes them and how to keep food safe.

How Foodborne Illness Occurs

Bacteria and viruses cause most cases of foodborne illness. The most common sources are the bacteria Campylobacter, Salmonella, E. coli, and a group of viruses known as the Norwalk and Norwalk-like viruses.

Some pathogens are naturally present in healthy animals. Salmonella bacteria can infect hens and enter their eggs. Shellfish may pick up bacteria that are naturally present in seawater. Fresh fruits and vegetables may become contaminated if they are washed with water that contains traces of human or animal wastes. Finally, infected humans who handle food can spread pathogens from their own skin to the food or from one food to another.

Some common symptoms of foodborne illness include cramps, diarrhea, nausea, vomiting, and fever. In most cases, people recover from foodborne illness within a few days. Occasionally, symptoms may be severe. Dehydration is one danger of foodborne illness. Fluids lost through vomiting and diarrhea can result in dehydration. If the following symptoms are present, consult a doctor:

- A fever higher than 101.5 degrees F
- Prolonged vomiting or diarrhea
- Blood in the stool
- Signs of dehydration, including a decrease in urination, dry mouth and throat, and feeling dizzy when standing

For more vocabulary practice, have students go to glencoe.com and use this code to access the Interactive Health Tutor.

Collaborative Skills  Have students assume that they and some friends all developed symptoms of food poisoning soon after eating the same food at a local restaurant. They wonder if other people became ill from the food and whether they should do something about it. Ask groups of students to discuss the situation and decide on the socially responsible action to take. Ask groups to share their ideas with the class. (Students might decide that they should contact the local health department about the food poisoning so that other people will not become ill in the future.)
**KEEPING FOOD SAFE TO EAT**

Food distributors and the U.S. government take steps to keep pathogens out of the food supply. One important process is pasteurization of milk and juices, which helps prevent *E. coli* infection. **Pasteurization** is treating a substance with heat to kill or slow the growth of pathogens. The Dietary Guidelines outline four basic steps for keeping food safe: clean, separate, cook, and chill.

**Clean** Wash and dry your hands frequently to keep pathogens on your skin from entering food. Be sure to wash your hands for at least 20 seconds with warm water and soap before and after handling food, as well as after using the bathroom, changing a diaper, or handling pets.

Clean utensils and surfaces carefully to prevent **cross-contamination**, the spreading of pathogens from one food to another. Wash cutting boards, dishes, utensils, and countertops with hot, soapy water after you finish preparing each food item. Mop up spilled food promptly using a paper towel or a clean cloth that has been washed in hot water.

Finally, wash the food itself. Rinse fresh fruits and vegetables under running water, and rub the surfaces of firm-skinned fruits and vegetables.

**Separate** The foods most likely to carry pathogens are raw meat, poultry, seafood, and eggs. To avoid cross-contamination, separate these from other foods. Store them separately when shopping and at home. Use separate cutting boards when preparing raw meats, poultry, and fish. After cooking meat, poultry, or fish, transfer the cooked food to a clean platter, rather than putting it back on the plate that held the raw food.

**Cook** Heating food to a high enough temperature will kill the pathogens that cause foodborne illness. To determine whether meat, poultry, and egg dishes are cooked thoroughly, use a food thermometer to measure the internal temperature (the temperature in the center of the food). **Figure 10.17** on page 280 shows the internal temperatures suggested for different foods.

**Writing Strategy**

**Writing Fiction** Challenge students to write a short story about the spread of a foodborne pathogen due to improper handling of food. Tell students that their stories should be told from the point of view of the pathogen. Stories should demonstrate how foods can become contaminated with a pathogen, what conditions cause the pathogen to grow, how the pathogen infects people, and what symptoms it causes. Make copies of a few of the best stories and hand them out to other students to read.
LESSON 4

R Reading Strategy
Understanding Key Phrases
Some students may not understand certain key phrases in the guidelines for safely cooking food. For example, they may not know what it means to “bring a liquid to a boil,” to “be opaque,” or to “measure internal temperature.” Call on volunteers to explain what these three phrases mean. BL

U Universal Access
Picturing Foods
Have students find and cut out pictures of a variety of foods from magazines. Tell students to include pictures of fresh produce and raw meat, poultry, seafood, and eggs. Display the pictures and ask students to identify foods that must be handled with care to avoid spreading pathogens to other foods. (The raw animal products) Ask students how they would handle these foods if they were buying them in a store. (Sample answers: Wrap them in plastic; put them in a separate bag) EL

C Critical Thinking
Explaining
Point out the danger zone on the thermometer in Figure 10.17. Ask students to explain why it is important to thaw foods in the refrigerator or microwave rather than at room temperature. (So they will pass quickly through the danger zone) Then ask why it is important to refrigerate leftovers as soon as possible. (For the same reason) OL

Caption Answer
Figure 10.17 It is called the “danger zone” because this temperature range is neither hot enough nor cold enough to prevent the growth of pathogens that cause foodborne illness.

Myths & Reality

Dangerous Food Safety Myths

Myth: Foods containing mayonnaise spoil faster than other foods.
Fact: Pathogens and toxins in food may not affect how the food smells or tastes.

Myth: If I sample a food and don’t get sick within a couple of hours, then the food must be safe to eat.
Fact: Symptoms of food poisoning may not develop for more than 24 hours after eating a food, so sampling is a dangerous and ineffective way to test food safety.

For some foods, you can tell whether they are fully cooked by their appearance. Eggs should be firm, not runny; fish should be opaque and flake easily with a fork. When reheating soups, sauces, or gravy, bring the liquid to a boil. Heat all leftovers to 165 degrees F. When cooking food in a microwave oven, stir and rotate the food periodically to make sure there are no cold spots in which bacteria can survive.

Chill
Refrigeration slows the growth of harmful bacteria. Refrigerate or freeze meat, poultry, and other perishable foods as soon as you bring them home from the store. Avoid overpacking the refrigerator; circulating air will help keep the food cool. Divide large amounts of food into small, shallow containers to help it cool more quickly.

Frozen foods should be thawed safely before cooking. Thaw frozen foods in the refrigerator, in a microwave, or under cold running water. Discard any food that has been sitting out at room temperature for two hours or longer—one hour when the temperature is above 90 degrees F.

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Frozen foods should be thawed safely before cooking. Thaw frozen foods in the refrigerator, in a microwave, or under cold running water. Discard any food that has been sitting out at room temperature for two hours or longer—one hour when the temperature is above 90 degrees F.
Food Sensitivities

Keeping pathogens out of food is important for everyone. Some people need to worry about specific foods. Food sensitivities—allergies and intolerances—can make some foods dangerous to eat. A food allergy is a condition in which the body’s immune system reacts to substances in some foods. The most common allergens are found in milk, eggs, peanuts, tree nuts, soybeans, wheat, fish, and shellfish. Food labels are required telling whether a food product contains any of these ingredients or any protein derived from them.

The symptoms of food allergies vary from mild to life threatening. Some people experience skin irritations, such as rashes, hives, or itching while others develop gastrointestinal symptoms such as nausea, vomiting, or diarrhea. The most dangerous allergic reaction is anaphylaxis, a condition in which the throat swells up and the heart has difficulty pumping. Anaphylaxis can be life threatening and requires immediate medical attention.

A food intolerance—a negative reaction to food that doesn’t involve the immune system—is more common than a food allergy. One of the most common is lactose intolerance, which occurs when a person’s body does not produce enough of the enzyme needed to digest lactose, a sugar found in milk. People who are lactose intolerant may experience gas, bloating, and abdominal pain.

**LESSON 4 ASSESSMENT**

**After You Read**

Reviewing Facts and Vocabulary

1. What does the term light mean when used on a food label?
2. What is the difference between a sell by date and a use by date?
3. What is another term that refers to foodborne illness?

Thinking Critically

4. Evaluate. An instant soup is very low in fat and calories but high in sodium. Can this food be labeled “healthy”? Explain why or why not.
5. Synthesize. What are the possible consequences of undercooked eggs?

Applying Health Skills

6. Practicing Healthful Behaviors. Summarize the steps for preventing foodborne illnesses. Post the steps in your kitchen as a reminder of food safety.

Writing Critically

7. Persuasive. Write an essay that convinces others of the importance of food safety.

**Real Life Issues**

After completing the lesson, review and analyze your response to the Real Life Issues question on page 274.

Lesson 4 Nutrition Labels and Food Safety 281
What’s in the Bag?

**NHES Standard 3** Students will demonstrate the ability to access valid information, products, and services to enhance health.

**Teaching Objectives**
- Analyze the nutritional information provided on food labels
- Demonstrate ability to evaluate nutritional information to make healthful food choices

**Teaching Strategies**
- Collect nutrition labels prior to this activity.
- Place students into groups of four or five. Give each group one brown paper grocery bag with 7–10 nutrition labels inside. Identify each bag with a number (#1, #2, etc.)
- Have students follow the steps in the hands-on activity “What’s in the Bag?”
- Give each group five minutes to analyze the nutrition labels inside the bag and select the healthiest food item. After students have written down their item and three reasons supporting their choice, instruct students to pass the bag clockwise to the next group and repeat the sequence until all groups have analyzed the items in each bag.

**Assessment**
Using a rubric, student work should provide comprehensive evidence of the following criteria to achieve the highest score:

- Cites specific sources
- Evaluates the validity of the source of information
- Analyzes the nutritional value of foods
- Demonstrates rationale for the appropriateness of their choices

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### Checklist: Accessing Information

- Did I access specific information from food labels? ✓✓
- Did I use information on the labels to analyze the nutritional values of foods? ✓✓
- Can I show that my choices are healthful? ✓✓

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### Activity

**What’s in the Bag?**

Your group is opening a health food store and is looking for healthful foods to stock the store. Working in groups, pass around grocery bags containing nutrition labels. After reviewing the Nutrition Facts information in this chapter, analyze each label, and choose one food item from each bag to add to your store’s inventory.

**What You’ll Need**
- paper and pen or pencil
- one brown paper grocery bag per group
- seven to ten nutrition labels per bag

**What You’ll Do**

**Step 1**
Choose a grocery bag for your group. Analyze the Nutrition Facts panel on each label and choose one.

**Step 2**
Write down the name of the food item and three reasons to support your group’s choice.

**Step 3**
Exchange the bag with another group. Repeat steps 2 and 3 until you’ve selected one item from each bag.

**Apply and Conclude**
Describe your choices to the class. Include the reasons why your group selected each food item for your store.

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### Health Literacy

What does the term vegetarian mean? *Vegetarian* refers to a type of eating plan that excludes certain animal-based foods. There are many types of vegetarian eating plans. A *vegan* eating plan includes only plant-based foods, such as vegetables, fruit, nuts, seeds, and grains. A *lactovegetarian* eating plan includes plant-based foods as well as dairy products such as cheese and milk. A *semi-vegetarian* eating plan omits red meat but includes other animal-based and plant-based foods.

People choose vegetarian eating plans for a variety of reasons. It is important to talk to a doctor before beginning a vegetarian eating plan to ensure that you are getting the right amounts of essential nutrients.
The Importance of Nutrition

Key Concepts

- Nutrients supply your body with energy and help it to grow, repair itself, and function well.
- Hunger is a physical need for food. Appetite is a desire to eat.
- Family, culture, friends, time, money, and advertising can influence your food choices.

Nutrients

Key Concepts

- The six nutrients are carbohydrates, proteins, fats, vitamins, minerals, and water.
- Carbohydrates, proteins, and fats provide you with energy.
- Vitamins, minerals, and water do not provide energy but are necessary for many body functions and processes.

Healthy Food Guidelines

Key Concepts

- The Dietary Guidelines for Americans provide recommendations for healthy eating and regular physical activity.
- The five major food groups are grains, vegetables, fruits, milk, and meat and beans.
- It is important to eat nutrient-dense foods that have a high ratio of nutrients to calories.

Nutrition Labels and Food Safety

Key Concepts

- Food labels provide information about ingredients, nutritional value, serving sizes, and calories.
- Four steps to prevent foodborne illnesses are clean, separate, cook, and chill.
- People with food allergies or food intolerances must take special care about the foods they eat.

Study Tips

Retaining Facts  Although it is important for students to develop analytical skills, they also need to be able to remember facts. Useful techniques for remembering facts include acronyms and acrostics. Acronyms are new words formed with the first letters of a group of words that you are trying to remember. For example, the acronym CUTS could be used to remember different types of fats (Cholesterol, Unsaturated fats, Trans fats, and Saturated fats). Acrostics are sentences based on the first letters of a group of words. An example is “cacti sometimes cause cuts,” which could be used to remember the steps in keeping food safe: clean, separate, cook, and chill. Repetition of facts is also a good way to reinforce retention.
**LESSON 1**

**Vocabulary Review**
1. nutrition
2. nutrients
3. calorie

**Understanding Key Concepts**
4. d
5. a

**Thinking Critically**
6. It can lead to unhealthful weight gain.
7. Sample answer: The business executive might choose more expensive foods that are quick to prepare, such as convenience foods. The part-time worker might choose foods that take longer to prepare but are less expensive.
8. Students may mention any specific foods, or occasions involving foods, that are related to a particular culture.

**LESSON 2**

**Vocabulary Review**
9. carbohydrates
10. cholesterol
11. Minerals

**Understanding Key Concepts**
12. a.
13. b.
14. c.
15. d.

**Thinking Critically**
6. Analyze. Why is emotional eating harmful?
7. Synthesize. How might the food choices of a high-powered business executive with a busy schedule differ from those of a part-time worker?
8. Discuss. Give an example of a way in which a person’s cultural background could influence that person’s food choices.

**Vocabulary Review**
9. Your body’s main source of energy is carbohydrates/proteins.
10. Consuming saturated fats and trans fats can increase the levels of fiber/cholesterol in your blood.
11. Vitamins/minerals are elements found in food that are used by the body.

**Understanding Key Concepts**
12. Which of the following is not one of the six basic nutrients?
   a. Carbohydrates
   b. Fiber
   c. Protein
   d. Vitamins
13. Your body uses carbohydrates by breaking them down into
   a. sugars.
   b. amino acids.
   c. fatty acids.
   d. water.
14. About what percentage of your daily calories should come from fat?
   a. 10 to 15 percent
   b. Less than 25 to 35 percent
   c. At least 30 percent
   d. 50 to 65 percent

Thinking Critically
   After reading the question or statement, write a short answer using complete sentences.

15. **Describe.** How does fiber benefit your body?
16. **Explain.** Why is it dangerous to consume too much of a fat-soluble vitamin?
17. **Explain.** Why does your body need more water when you are very active?

LESSON 3

Vocabulary Review
   Use the vocabulary terms listed on page 283 to complete the following statements.

18. The ________ contain recommendations about smart eating and physical activity for all healthy Americans.
19. An interactive guide to healthy eating and active living is the ________.
20. Foods that are ________ have a high ratio of nutrients to calories.

Understanding Key Concepts
   After reading the question or statement, select the correct answer.

21. Which food group band in MyPyramid is largest?
   a. Grains
   b. Fruits
   c. Milk
   d. Meat and beans
22. The Dietary Guidelines recommend that teens be physically active for
   a. 20 minutes, three or more times a week.
   b. 30 minutes a day.
   c. 50 minutes, five or more times a week.
   d. 60 minutes a day.

Thinking Critically
   After reading the question or statement, write a short answer using complete sentences.

23. Which method of preparation tends to make food high in fat?
   a. Baking
   b. Broiling
   c. Frying
   d. Grilling

LESSON 4

Vocabulary Review
   Correct the sentences below by replacing the italicized term with the correct vocabulary term.

24. Ingredients may be used to keep a food fresh longer, to boost its nutrient content, or to improve its taste, texture, or appearance.
25. Boiling means treating a substance with heat to kill or slow the growth of pathogens.
26. It is important to clean utensils and surfaces carefully to prevent foodborne illness, the spread of pathogens from one food to another.

Thinking Critically
   After reading the question or statement, write a short answer using complete sentences.

27. By choosing calcium-fortified foods and beverages
28. With nutrient-dense foods, you can get all the nutrients you need without eating more than the recommended number of calories.
29. Answers will vary but should include only nutrient-dense foods. Sample answers: Fresh fruit, cut-up vegetables, string cheese, unsalted nuts, air-popped popcorn, fat-free yogurt, bread sticks

Vocabulary Review

27. Food additives
28. Pasteurization
29. Cross-contamination
Understanding Key Concepts

After reading the question or statement, select the correct answer.

30. Which of the following is not listed in the Nutrition Facts panel?
   a. The number of servings per container
   b. The number of calories per serving
   c. The vitamin and mineral content of the food
   d. The ingredients found in the food

31. Regular ice cream contains 7.5 grams of fat per serving. Ice cream that contains only 5 grams of fat per serving could be described as
   a. light
   b. low-fat
   c. reduced-fat
   d. fat-free

32. Which of the following is the correct answer?
   a. Clean
   b. Chop
   c. Cook
   d. Chill

Thinking Critically

33. The low-fat food must have three grams or less of fat per serving. The reduced-fat food only needs to have 25 percent less fat than the original version of the same food.
34. Cramps, diarrhea, nausea, vomiting, and fever
35. Any two: Milk, eggs, peanuts, tree nuts, soybeans, wheat, fish, shellfish

The Importance of Nutrients

Background
Nutrients are the substances in food that your body needs. To have a healthful diet, your body needs six basic nutrients.

Task
You will work in a small group to create a wiki that a group of friends can use to help each other make healthy food choices.

Audience
Students in your class

Purpose
The purpose of the wiki is to help your peers learn to make healthy food choices based on the six basic nutrients.

Procedure
1. Review the information about the six groups of nutrients discussed in Chapter 10.
2. Create a wiki with your group that explains and gives examples and tips on how to make healthy food choices based on the six basic nutrients.
3. Be sure the healthy food choices are based on the six nutrients. Make any necessary revisions.
4. Obtain permission from your principal to post the wiki on the school’s Web site.

Visit glencoe.com for Project-Based Assessment rubrics.
Interpret Tables. To determine which food intake pattern to use, the following table gives an estimate of individual calorie needs. The calorie range for each age/sex group is based on physical activity level, from sedentary to active. Sedentary lifestyles include light physical activity. Active lifestyles include the equivalent to walking more than 3 miles per day at 3 to 4 miles per hour and the light physical activity typical of day-to-day life.

<table>
<thead>
<tr>
<th></th>
<th>Sedentary</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14–18</td>
<td>1,800</td>
<td>2,400</td>
</tr>
<tr>
<td>19–30</td>
<td>2,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Males</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14–18</td>
<td>2,200</td>
<td>3,200</td>
</tr>
<tr>
<td>19–30</td>
<td>2,400</td>
<td>3,200</td>
</tr>
</tbody>
</table>

1. What are the approximate calorie needs of a sedentary 16-year-old male?
   A. 1,800 calories  
   B. 2,000 calories  
   C. 2,200 calories  
   D. 2,400 calories

2. In 2000, the total number of active females age 14–18 in the United States was approximately 4,788,000. This was a 31 percent increase from the total number in 1975. What was the approximate number of active females age 14–18 in 1975?
   A. 274,000  
   B. 398,000  
   C. 2,245,000  
   D. 3,655,000

3. About 35 percent of a 16-year-old male’s calories should come from carbohydrates. Which most closely matches this number?
   A. 1/4  
   B. 1/3  
   C. 3/5  
   D. 5/7

1. What was the author’s purpose in writing this piece?
   A. To teach friends how to communicate better
   B. To explain that eating better can affect your health
   C. To persuade others to eat cookies rather than chips
   D. To argue that healthy snacks taste better than unhealthy snacks

2. According to this text passage, high blood pressure may be related to
   A. exercising occasionally.
   B. choosing salty foods that are high in fat.
   C. selecting low-fat foods that are salty.
   D. eating foods that are high in fat and salt.

3. Write a paragraph giving your suggestions about how to improve eating habits. Provide details to support your main points.

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Test-Taking Tip

Previewing Suggest to students that, before they start answering questions on a standardized test, they quickly preview the entire test (if allowed). They can see how the test is organized and estimate how much time they will need to complete each part.

They can also identify any parts or questions that they think will be quick and easy to answer. If they complete these items first, they can take more time answering the more difficult questions.