



# UNIT

# 4

# Nutrition and Physical Activity

## Chapter 10

### Nutrition for Health



*It's Your Health,  
It's Your Choice*

## Chapter 11

### Managing Weight and Eating Behaviors



*Food, Habits, and Choices*

## Chapter 12

### Physical Activity and Fitness



*Balance and Fitness*



## UNIT PROJECT

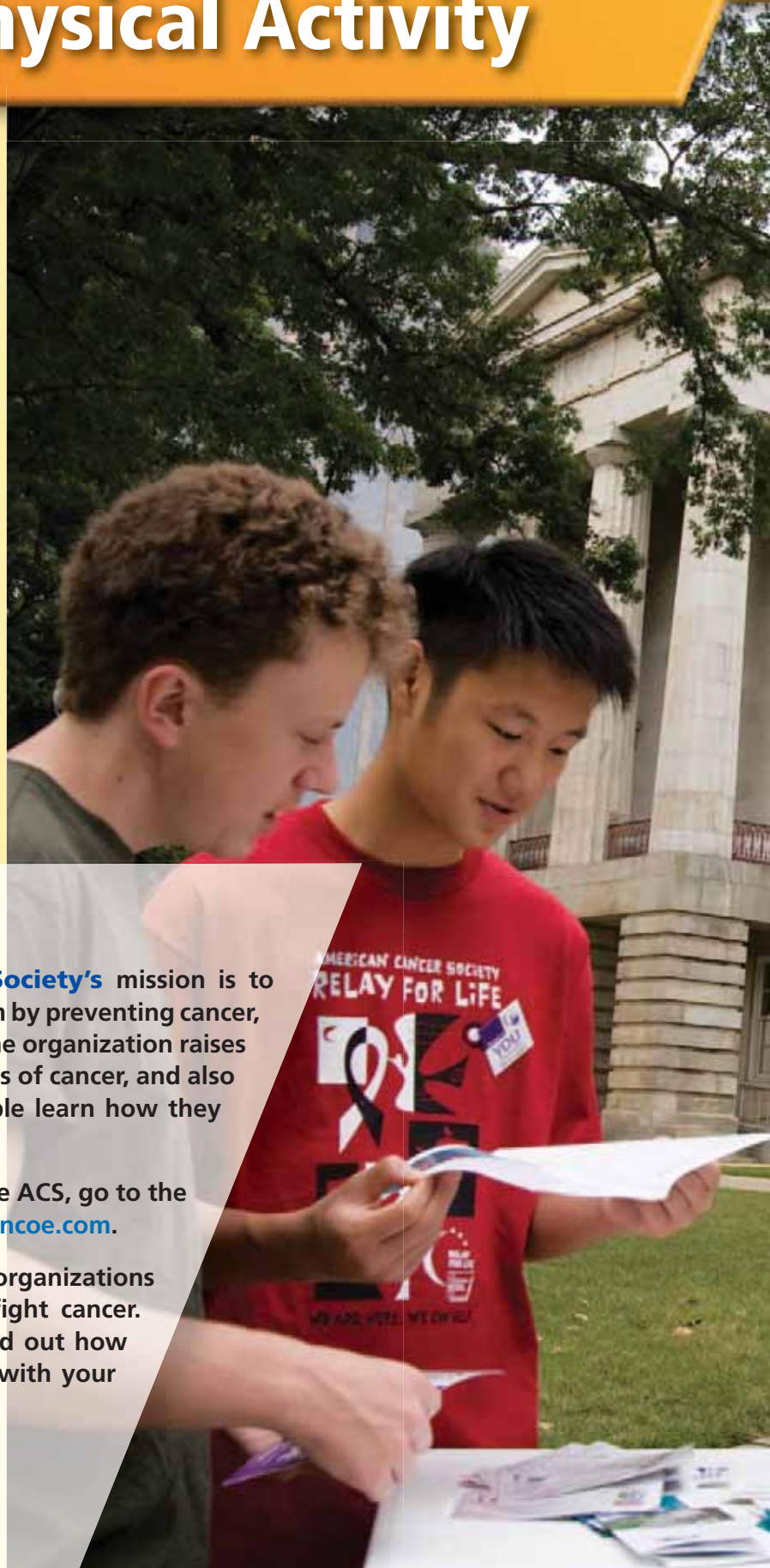
### Raising Awareness

**Using Visuals** The **American Cancer Society's** mission is to "eliminate cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering." The organization raises funds for research into the causes and cures of cancer, and also funds education programs that help people learn how they can reduce their risk for this disease.



To learn more about the ACS, go to the Unit Web Project at [glencoe.com](http://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.





***"He who has health has hope; and he who has hope has everything."***

***—Arabian proverb***







## CHAPTER

# 10

# Nutrition for Health

### Lesson 1

#### The Importance of Nutrition

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

### Lesson 2

#### Nutrients

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

### Lesson 3

#### Healthy Food Guidelines

**BIG Idea** MyPyramid is a tool that can help you choose healthful foods for all your meals and snacks.

### Lesson 4

#### Nutrition Labels and Food Safety

**BIG Idea** By reading food labels and handling foods safely, you can avoid many food-related health problems.



### Activating Prior Knowledge

**Using Visuals** Take a look at the photo on this page. How are these teens practicing healthful behaviors? Explain your thoughts in a short paragraph.





# Chapter Launchers

## Health in Action

### Discuss the **BIG** Ideas

Before beginning this chapter, 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



#### *It's Your Health, It's Your Choice*

What types of food would you include in a healthy menu to achieve balance and variety?

### Assess Your Health



Visit [glencoe.com](http://glencoe.com) and complete the Health Inventory for Chapter 10.





# LESSON 1



## 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 (p. 254)
- ▶ nutrients (p. 254)
- ▶ calorie (p. 254)
- ▶ hunger (p. 255)
- ▶ appetite (p. 255)

# The Importance of Nutrition

## Real Life Issues

**Making Food Choices.** Marcus usually eats dinner with his parents, but sometimes they have to work late. When Marcus is on his own, he often just microwaves a frozen meal. He wishes he knew more about how to fix healthful and satisfying meals for himself.



**Writing** Write a dialogue between Marcus and his parents in which he explains his wish for healthful dinners. In the dialogue, Marcus and his parents should come up with ideas for how he can make tasty, healthful meals on his own.



## 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, however, understand how the body uses food. The food you eat plays a significant role in your total health. What do you think about when you are deciding what to eat? 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.





Bill Aron/Photo Edit

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 unhealthy 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



## READING CHECK

**Explain** In what ways do your eating habits affect your lifelong health?



## What Influences Your Food Choices?

**Main Idea** A variety of factors influence 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?*





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](http://glencoe.com).



## 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.

Photoblibrary/Index Stock

## 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.



### READING CHECK

#### **Make Inferences**

Why do advertisers want to influence your food choices?

■ **Figure 10.2** Seeing what your friends and peers eat can influence your own food choices. *What are some of the ways your friends have influenced your eating habits?*





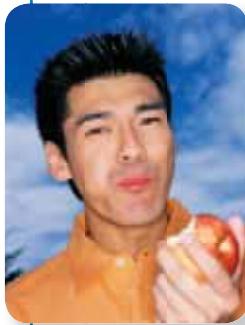


# Health Skills Activity

## 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.



## LESSON 1



## ASSESSMENT

### 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.



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for this lesson.

# LESSON 2

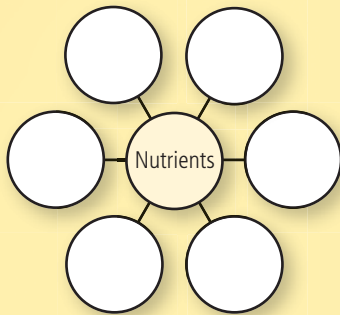


## GUIDE TO READING

**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.



# Nutrients

## 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.



## New Vocabulary

- ▶ carbohydrates (p. 259)
- ▶ fiber (p. 259)
- ▶ proteins (p. 260)
- ▶ cholesterol (p. 262)
- ▶ vitamins (p. 262)
- ▶ minerals (p. 262)
- ▶ osteoporosis (p. 264)



## 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.





# 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.



Listen to the Health Podcast Activity *Nutrition* at [glencoe.com](http://glencoe.com).

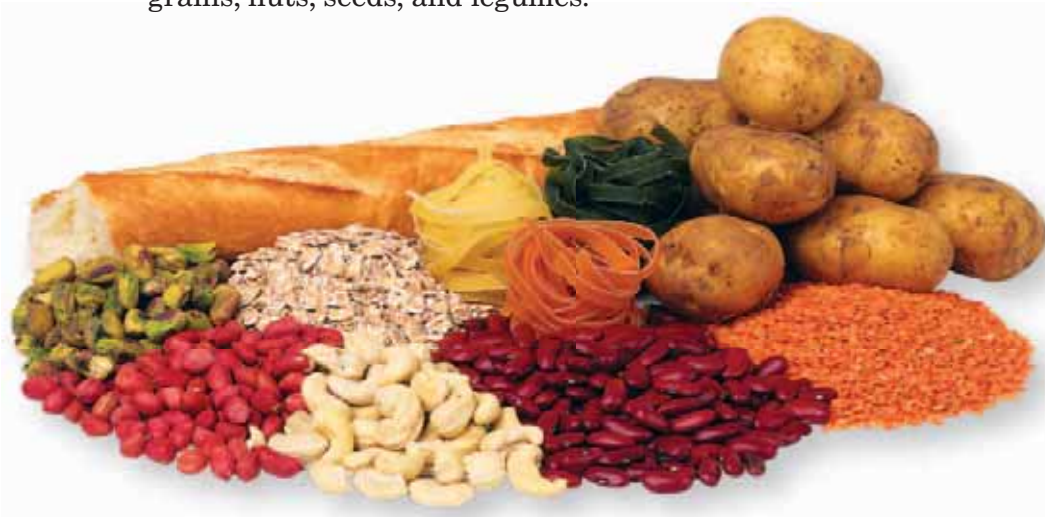
## Carbohydrates

**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?*



**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.



### Is Fortified Food Healthier?

**Analyze.** Go to [glencoe.com](http://glencoe.com) and watch the video

### Is Fortified Food Healthier?

With a small group, decide whether you think fortified foods are helpful in eating a healthy diet and write a paragraph supporting your choice. Include examples to support your decisions.



## 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 because the body must get them from food. The rest are known as nonessential amino acids.

Other proteins are from animal sources—such as meat, eggs, and dairy products—and from soy. They are sometimes called “complete” proteins because they contain all nine 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.

■ **Figure 10.4** All these foods are good sources of protein. Which of these foods provide complete proteins?







## 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?*





The calories from fats that your body does not use are stored as body fat. Stored fat, known as adipose tissue, provides insulation for the body. However, carrying too much body fat increases the risk of health problems, such as type 2 diabetes and cardiovascular disease.

In addition, consuming saturated fats can increase the levels of **cholesterol**—a waxy, fatlike substance—in your blood. Cholesterol is needed to create cell walls, certain hormones, and vitamin D. However, excess cholesterol in your blood can build up on the insides of the arteries. This raises your risk of heart disease. Trans fats behave like saturated fats and promote cholesterol buildup in your arteries.

Nutrition experts recommend that teens consume less than 25 to 35 percent of their calories from fats because of the health risks associated with fats. Choose healthful unsaturated fats and limit your intake of saturated fats, including trans fats, to less than 10 percent of your total calories.



## READING CHECK

### Cause and Effect

What are the benefits of choosing snacks labeled “no trans fat”?



## Other Types of Nutrients

**Main Idea** 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

**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

**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.



My doctor says that a lot of teens don’t get the nutrients they need because of poor eating habits. Teenagers tend to eat foods high in fat, like fast foods. We need to eat foods like fruits, vegetables, and low-fat dairy products. Now I try to eat the right amount of fruits and veggies every day. For more fitness tips, visit the Online Fitness Zone at [glencoe.com](http://glencoe.com).



## Figure 10.6 Vitamins

Vitamins in yellow boxes are fat soluble. Those in blue boxes are water soluble.

Vitamin/Amount Needed Per Day by Teens Ages 14 to 18	Role in Body	Food Sources
<b>Fat-Soluble Vitamins</b>		
<b>A</b> Teen female: 700 mcg Teen male: 900 mcg	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	carrots, sweet potatoes, tomatoes, fortified cereals, leafy green vegetables, fish, liver, fortified dairy products, egg yolks
<b>D (calciferol)</b> Teen female: 5 mcg Teen male: 5 mcg	helps body use calcium and phosphorus (needed for building bones); aids immune function; helps regulate cell growth	fortified cereals and dairy products, fatty fish such as salmon and tuna <b>Note:</b> Your skin naturally produces vitamin D when exposed to sunlight.
<b>E</b> Teen female: 15 mg Teen male: 15 mg	protects cells from damage; aids blood flow; helps repair body tissues	fish, milk, egg yolks, vegetable oils, fruits, nuts, peas, beans, broccoli, spinach, fortified cereals
<b>K</b> Teen female: 75 mcg Teen male: 75 mcg	essential for blood clotting, aids bone formation	green leafy vegetables, vegetable oils, cheese, broccoli, tomatoes
<b>Water-Soluble Vitamins</b>		
<b>B<sub>1</sub> (thiamine)</b> Teen female: 1.0 mg Teen male: 1.2 mg	helps the body use carbohydrates for energy; promotes health of nervous system	enriched and whole-grain cereal products, lean pork, liver
<b>B<sub>2</sub> (riboflavin)</b> Teen female: 1.0 mg Teen male: 1.3 mg	helps the body process carbohydrates, proteins, and fats; helps maintain healthy skin	lean beef, pork, organ meats, legumes, eggs, cheese, milk, nuts, enriched grain products
<b>B<sub>3</sub> (niacin)</b> Teen female: 14 mg Teen male: 16 mg	helps body process proteins and fats; maintains health of skin, nervous system, and digestive system	liver, poultry, fish, beef, peanuts, beans, enriched grain products
<b>B<sub>6</sub></b> Teen female: 1.2 mg Teen male: 1.3 mg	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	organ meats, pork, beef, poultry, fish, eggs, peanuts, bananas, carrots, fortified cereals, whole grains
<b>B<sub>12</sub> (cobalamin)</b> Teen female: 2.4 mcg Teen male: 2.4 mcg	maintains healthy nerve cells and red blood cells; needed for formation of genetic material in cells; prevents one type of anemia	liver, fish, poultry, clams, sardines, flounder, herring, eggs, milk, other dairy foods, fortified cereals
<b>C (ascorbic acid)</b> Teen female: 65 mg Teen male: 75 mg	protects against infection; promotes healthy bones, teeth, gums, and blood vessels; helps form connective tissue; helps heal wounds	citrus fruits and juices, berries, peppers, tomatoes, broccoli, spinach, potatoes
<b>Folic acid (folate)</b> Teen female: 400 mcg Teen male: 400 mcg	helps body form and maintain new cells; reduces risk of birth defects	dark green leafy vegetables, dry beans and peas, oranges, fortified cereals and other grain products



## READING CHECK

**Explain** What is the difference between water- and fat-soluble vitamins?

One mineral that is especially important to your health is calcium. Calcium promotes bone health. Eating calcium-rich foods helps reduce your risk of developing **osteoporosis**, *a condition in which the bones become fragile and break easily*. Osteoporosis is most common in women over the age of 50. You can take action now to prevent the likelihood that you will develop osteoporosis when you're older. Bone mass builds up most rapidly between the ages of ten and 20, reaching its peak around age 30. Eating plenty of calcium-rich foods as a teen can protect your health years down the road.

## Water

Water is essential for most body functions. All of the body cells contain water. Water's functions include

- moving food through the digestive system.
- digesting carbohydrates and protein, and aiding other chemical **reactions** in the body.
- transporting nutrients and removing wastes.
- storing and releasing heat.
- cooling the body through perspiration.
- cushioning the eyes, brain, and spinal cord.
- lubricating the joints.

### Academic Vocabulary

**reaction** (noun): a response to a stimulus or influence

**Figure 10.7**

## Minerals

Mineral/Amount Needed Per Day by Teens Ages 14 to 18	Role in Body	Food Sources
<b>Calcium</b> Teen female: 1,300 mg Teen male: 1,300 mg	forms bones and teeth; aids blood clotting; assists muscle and nerve function; reduces risk of osteoporosis	dairy products, calcium-fortified juice, calcium-fortified soy milk and tofu, corn tortillas, Chinese cabbage, broccoli, kale
<b>Phosphorus</b> Teen female: 1,250 mg Teen male: 1,250 mg	produces energy; maintains healthy bones	dairy products, peas, meat, eggs, some cereals and breads
<b>Magnesium</b> Teen female: 360 mg Teen male: 410 mg	maintains normal muscle and nerve function; sustains regular heartbeat; aids in bone growth and energy production	meat, milk, green leafy vegetables, whole grains, nuts
<b>Iron</b> Teen female: 15 mg Teen male: 11 mg	part of a compound in the red blood cells needed for carrying oxygen; aids in energy use; supports immune system	meat, poultry, beans, fortified grain products



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. w

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?*



## LESSON 2



## ASSESSMENT

### After You Read

#### Reviewing Facts and Vocabulary

1. Which nutrients can your body use as sources of energy?
2. What are essential amino acids? From what source do you obtain essential amino acids?
3. How does eating calcium-rich foods as a teen protect your lifelong health?

#### Thinking Critically

4. **Analyze.** Explain how saturated fats and trans fats may cause illnesses later in life, like heart disease.
5. **Synthesize.** What are the health benefits of eating a variety of fruits and vegetables?

#### Applying Health Skills

6. **Goal Setting.** Examine your school's weekly lunch menu. List the most healthful food choices available each day. Then use the steps for goal setting to create a healthy eating plan.

#### Writing Critically

7. **Narrative.** Write a story from the point of view of a nutrient. Have the nutrient describe itself, what it does in the body, and why it is important for health.



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for this lesson.



# LESSON 3



## 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 (p. 266)
- ▶ MyPyramid (p. 267)
- ▶ nutrient-dense (p. 269)

# 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.





## 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.

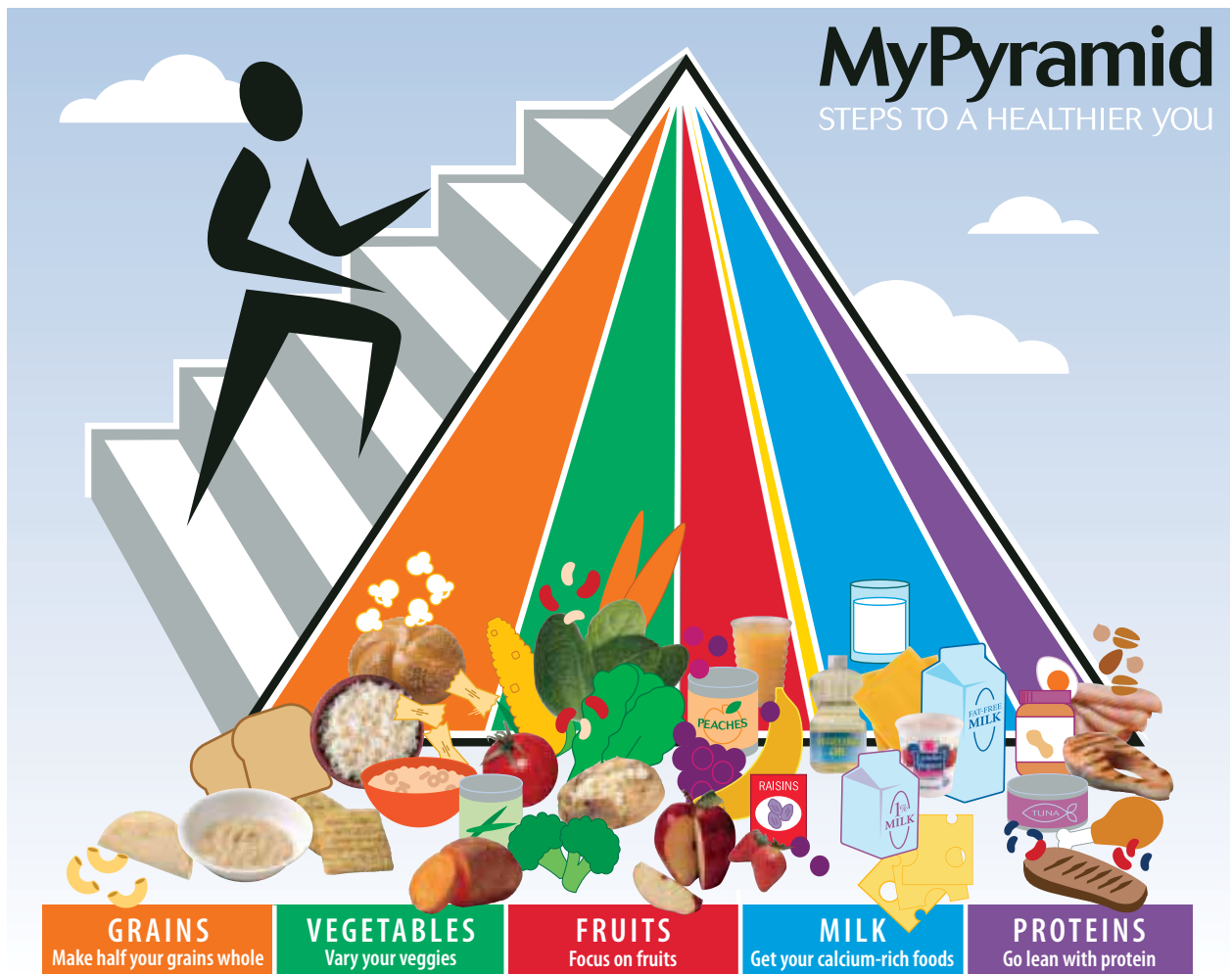


For more vocabulary practice, go to the Interactive Health Tutor at [glencoe.com](http://glencoe.com).

**Figure 10.9**

### MyPyramid

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





## READING CHECK

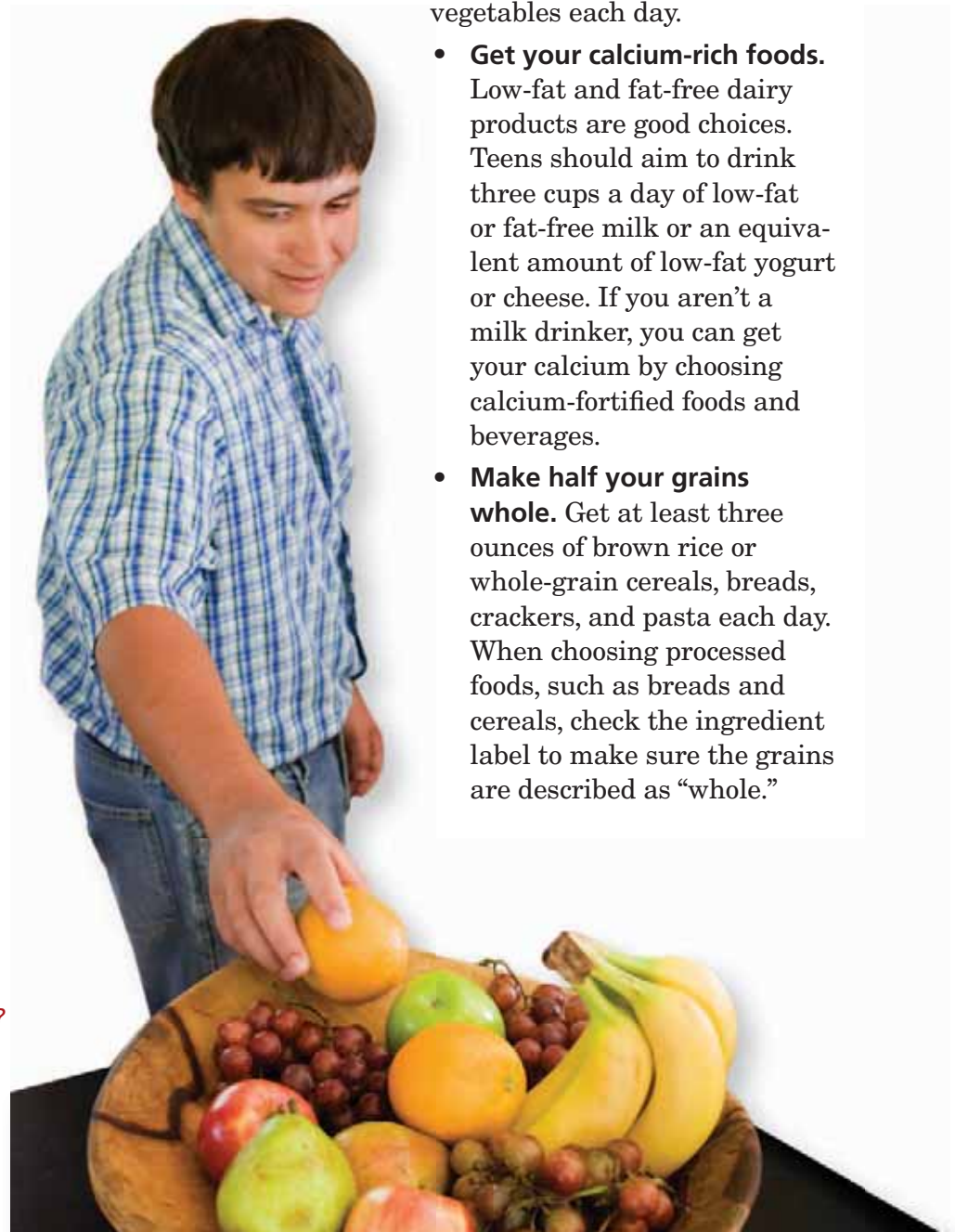
**Explain** Why are the bands in MyPyramid different sizes?

The steps on the side of the pyramid remind you to be physically active every day. Your level of physical activity should balance out the calories in the foods you eat. The MyPyramid site provides individually tailored advice about your daily calorie needs based on your age, gender, and activity level.

**Your Best Choices** Within each food group, some choices are better than others. The Dietary Guidelines offer recommendations for choosing the most healthful foods from each food group:

- **Focus on fruits.** Eat a variety of fruits. Fresh whole fruits that provide fiber are a better choice than fruit juice.
- **Vary your veggies.** Vegetables fall into several categories. These categories include dark green vegetables, such as broccoli, kale, and spinach, and orange vegetables, such as carrots, pumpkin, and winter squash. Try to eat a good mix of different types of vegetables each day.

- **Get your calcium-rich foods.** Low-fat and fat-free dairy products are good choices. Teens should aim to drink three cups a day of low-fat or fat-free milk or an equivalent amount of low-fat yogurt or cheese. If you aren't a milk drinker, you can get your calcium by choosing calcium-fortified foods and beverages.
- **Make half your grains whole.** Get at least three ounces of brown rice or whole-grain cereals, breads, crackers, and pasta each day. When choosing processed foods, such as breads and cereals, check the ingredient label to make sure the grains are described as "whole."



■ **Figure 10.10** The Dietary Guidelines recommend choosing a variety of fruits and vegetables every day. *What fruits or vegetables would you choose for an afternoon snack?*





- **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.



Part of my fitness plan is to make healthier food choices. For me, that means just a few little changes. When I eat out, I choose healthy substitutes, like grilled chicken instead of fried chicken, or using ketchup and mustard instead of mayonnaise. It's not that hard to substitute, but it's made a big difference to my fitness level. For more fitness tips, visit the Online Fitness Zone at [glencoe.com](http://glencoe.com).

## 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, a 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.



## Real World CONNECTION

### Evaluate Your Eating Habits

MyPyramid shows you how much of the food you eat should come from each food group. So how do you determine how much food you need from each group? The answer depends on you. The MyPyramid Web site can help you evaluate your diet relative to your personal needs, your energy balance, and the Dietary Guidelines. When you visit the MyPyramid Web site, you can enter information about your age, gender, and activity level. The site will then generate a personalized pyramid for you that tells you how much food you should eat from each food group. Visit the MyPyramid site and create your personal pyramid.



#### Reading / Writing

To evaluate your eating habits, keep a food diary for a week. Your food diary should record each food you eat and drink, and the amount you consume.

1. Write down everything you eat, including the type and amount of each food.
2. Compare what you ate each day to the pyramid's recommendations. Did you stay within the pyramid's guidelines, or eat more or less than recommended?
3. In a paragraph, describe how your eating matches up with the guidelines.
4. List some steps to improve your eating habits.



## Healthful Eating Patterns

**Main Idea** 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.

### Academic Vocabulary

**visualize** (verb): to form a mental image of





**Figure 10.11**

## What's on Your Plate?

The plate diagram can help you visualize how much space you might devote to each type of food. *How might you adapt this diagram to a meal that has different types of foods mixed together, such as pasta with vegetables?*



### 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.



### READING CHECK

#### Analyze a Graph

List ways that the plate diagram and the MyPyramid guidelines are consistent?



■ **Figure 10.12** Many different foods can be part of a healthful breakfast. *Name three nontraditional breakfast foods that you might like 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



Visit [glencoe.com](http://glencoe.com) and complete the Student Web Activity on selecting foods as part of a nutritious eating plan.





## 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.

■ **Figure 10.13** Splitting a meal is one way to avoid overeating in a restaurant. *What are other strategies for choosing healthful foods when you go out to eat?*



### LESSON 3



### ASSESSMENT

#### 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.



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for this lesson.

# LESSON 4



## GUIDE TO READING

**BIG Idea** By reading food labels and handling foods safely, you can avoid many food-related health problems.

### Before You Read

#### Organize Information.

Fold a sheet of paper into quarters. Unfold it and label the four sections "Clean," "Separate," "Cook," and "Chill." As you read, fill in the sections with tips about the four steps in food safety.

Clean	Separate
Cook	Chill



### New Vocabulary

- ▶ food additives (p. 275)
- ▶ foodborne illness (p. 278)
- ▶ pasteurization (p. 279)
- ▶ cross-contamination (p. 279)
- ▶ food allergy (p. 281)
- ▶ food intolerance (p. 281)

# Nutrition Labels and Food Safety



## Real Life Issues

**Food Allergies.** Alex is allergic to nuts. If he eats anything that contains nuts, his face swells up and he has to be taken to the hospital. He's learned to read food labels carefully to make sure nothing he eats has nuts in it. His friend Lauren has invited him to her house for dinner with her family. He'd like to say yes, but he knows that if anything they serve has nuts in it, he could be in serious trouble.



**Writing** Write a paragraph explaining how you would handle this situation. How can Alex protect his safety and his friend's feelings at the same time?



## Nutrition Label Basics

**Main Idea** Food labels provide information about the ingredients and nutritional value of foods.

Whenever you buy a package of food, it has a label that tells you about the nutritional value of what's inside. The food label also lists all of the ingredients that were used to prepare the food. Among other things, the food label lists

- the name of the food product.
- the amount of food in the package.
- the name and address of the company that makes, packages, or distributes the product.
- the ingredients in the food.
- the Nutrition Facts panel, which provides information about the nutrients found in the food.



## Ingredient List

The ingredients in a food appear on the label in descending order by weight. So, the ingredient that makes up the largest share of the weight comes first, followed by the one that makes up the next largest share of the weight, and so on. However, food labels that list several similar ingredients can be misleading. For example, a product that contains three kinds of sweeteners would list each one separately: *high-fructose corn syrup*, *corn syrup*, *sugar*. Therefore, the three sweeteners appear farther down on the list than they would if they were all listed as a single ingredient, *sugars*. This may give the impression that the product contains less added sugars than it really does.

**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.



### READING CHECK

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

## 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.



After we learned to read food labels in health class, I started checking the label on everything I eat. I’m doing it as part of my overall fitness plan. I was surprised to see that fruit juice is high in calories! It’s better to drink water or eat a piece of fruit. For more fitness tips, visit the Online Fitness Zone at [glencoe.com](http://glencoe.com).





Explore [glencoe.com](https://www.glencoe.com) and complete the Student Web Activity on reading and understanding the Nutrition Facts panels on food packages.

- **Reduced.** The food contains 25 percent fewer calories, or 25 percent less of a given nutrient, than the original version. This term may also be worded as *less* or *fewer*. Foods labeled as *reduced* may offer a much healthier option than the original version. The reduced version of a high calorie food may still contain a high number of calories.
- **High.** The food provides at least 20 percent of the daily value for a vitamin, mineral, protein, or fiber. Synonyms for this term include *rich in* and *excellent source of*.
- **Good source of.** The food provides 10 to 19 percent of the daily value for a vitamin, mineral, protein, or fiber. Synonyms for this term include *contains* and *provides*.
- **Healthy.** Foods described as healthy must be low in fat and saturated fat and contain limited amounts of cholesterol and sodium. They must also provide at least 10 percent of the daily value for vitamin A, vitamin C, iron, calcium, protein, or fiber.

**Figure 10.14**

## Nutrition Facts Panel

The Nutrition Facts panel gives information about the nutrients found in a food.  
**Why do consumers need this information?**

### Nutrition Facts

Serving Size 30g (about 12 pretzels)

Servings Per Container 30

Amount Per Serving

**Calories 110**      Calories from Fat 10

% Daily Value\*

**Total Fat 1g**      **2%**

Saturated Fat 0g      **0%**

Trans Fat 0g      **0%**

**Cholesterol 0mg**      **0%**

**Sodium 300mg**      **13%**

**Total Carbohydrate 23g**      **8%**

Dietary Fiber 1g      **4%**

Sugars Less than 1g

**Protein 3g**

Vitamin A 0% • Vitamin C 0%

Calcium 0% • Iron 4%

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

Total Fat	Less Than	65g	80g
Sat Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4

**Serving Size and Servings Per Container** Used to calculate the nutrient and calorie content of a food.

**Calories** This section shows the percentage of calories in each serving that come from fat.

**Nutrients** The amounts of total fat, saturated fat, trans fat, cholesterol, and sodium per serving, measured in grams (g) or milligrams (mg) are listed here.

**Vitamins and Minerals** This section shows a few major vitamins and minerals, listed as a percentage of your daily needs.

**Footnote** This section is the same for every product, providing advice on the amounts of certain nutrients that you should consume each day.

**Percent Daily Value** Daily Value (DV) of a nutrient is a guide to approximately how much of the nutrient you need each day. Percent Daily Value shows the percentage of the DV a serving of the food will provide. The DV is based on the Reference Daily Intakes, or RDIs, which are established by the FDA. DVs for energy-producing nutrients, by contrast, are based on Daily Reference Values (DRVs), which show how much of each nutrient is recommended for a person who consumes 2,000 calories each day.



Scott Olson/Getty Images

## 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



■ **Figure 10.15** Foods bearing the USDA Organic label are produced without the use of certain agricultural chemicals. *Why might some consumers prefer these foods?*



# Food Safety

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



For more vocabulary practice, go to the Interactive Health Tutor at [glencoe.com](http://glencoe.com).

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





John Birdsell/age Fotostock FM

## 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.



### READING CHECK

**Explain** Why is it best to always use warm water and soap when washing your hands?

■ **Figure 10.16** Washing hands, produce, utensils, and surfaces carefully is the first step in preventing foodborne illness. *How does this step prevent the spread of pathogens?*





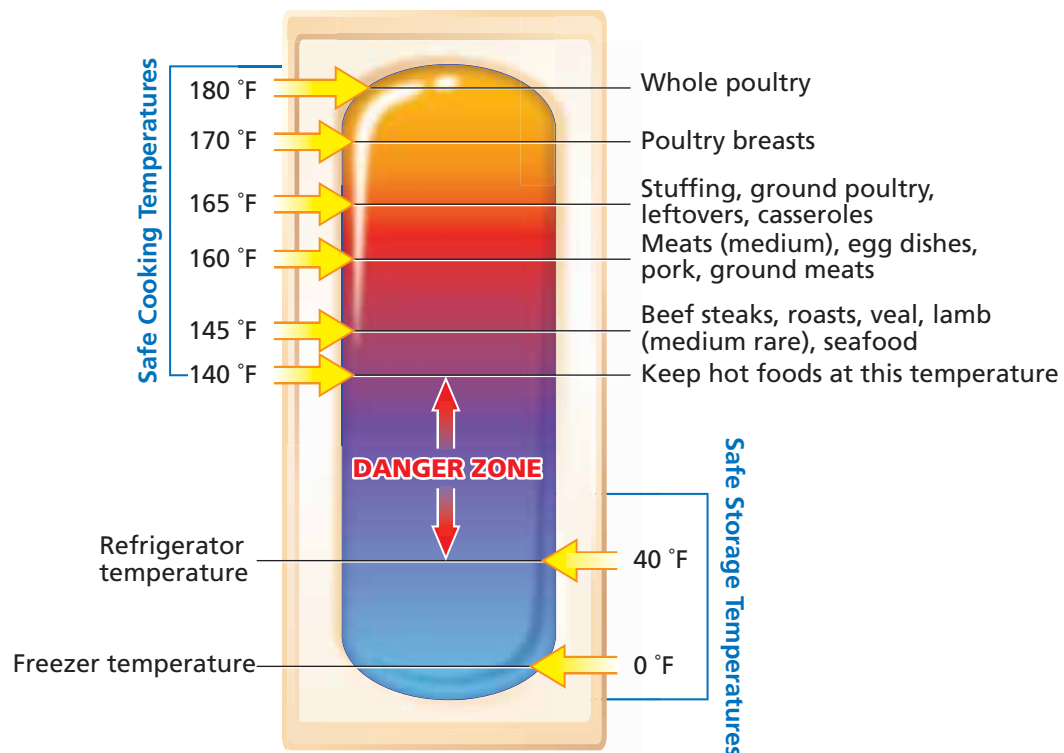
For some foods, you can tell whether they are fully cooked by their appearance. Eggs should be firm, not runny; fish should be opaque and flake easily with a fork. When reheating soups, sauces, or gravy, bring the liquid to a boil. Heat all leftovers to 165 degrees F. When cooking food in a microwave 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.

### Figure 10.17 Safe Food Temperatures

The top of this thermometer shows safe temperatures for cooking food, while the bottom shows safe temperatures for storing food. *Why is the area in the middle called the danger zone?*





## 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.



### READING CHECK

**Compare and Contrast** What is the difference between a food allergy and a food intolerance?

## 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 food-borne 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.



Visit [glencoe.com](http://glencoe.com) and complete the Interactive Study Guide for this lesson.



# Hands-On HEALTH



## 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.

### 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?





To download quizzes and eFlashcards to your PDA, go to [glencoe.com](http://glencoe.com) and click on the Study to Go icon.

**LESSON 1****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.

**Vocabulary**

- ▶ nutrition (p. 254)
- ▶ nutrients (p. 254)
- ▶ calorie (p. 254)
- ▶ hunger (p. 255)
- ▶ appetite (p. 255)

**LESSON 2****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.

**Vocabulary**

- ▶ carbohydrates (p. 259)
- ▶ fiber (p. 259)
- ▶ proteins (p. 260)
- ▶ cholesterol (p. 262)
- ▶ vitamins (p. 262)
- ▶ minerals (p. 262)
- ▶ osteoporosis (p. 264)

**LESSON 3****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.

**Vocabulary**

- ▶ Dietary Guidelines for Americans (p. 266)
- ▶ MyPyramid (p. 267)
- ▶ nutrient-dense (p. 269)

**LESSON 4****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.

**Vocabulary**

- ▶ food additives (p. 275)
- ▶ foodborne illness (p. 278)
- ▶ pasteurization (p. 279)
- ▶ cross-contamination (p. 279)
- ▶ food allergy (p. 281)
- ▶ food intolerance (p. 281)



## LESSON 1

## Vocabulary Review

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

1. The process by which your body takes in and uses food is called \_\_\_\_\_.
2. Your body relies on food to provide it with the \_\_\_\_\_ it needs to grow, to repair itself, and to supply you with energy.
3. A \_\_\_\_\_ is a unit of heat used to measure the energy your body uses and the energy it receives from food.

## Understanding Key Concepts

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

4. Which of the following is not a way that choosing healthful foods affects your total health and wellness?
  - a. It gives your body the nutrients it needs for growth and development.
  - b. It helps you avoid unhealthy weight gain.
  - c. It provides fuel for sports and other activities.
  - d. It ensures that you will never get sick.
5. Preferring certain foods because you've grown up eating them is an example of the influence of
  - a. family.
  - b. friends.
  - c. money.
  - d. advertising.
6. Hearing your stomach growl and feeling tired and lightheaded are signs of
  - a. hunger.
  - b. appetite.
  - c. emotional eating.
  - d. mindless eating.

## Thinking Critically

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

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

## LESSON 2

## Vocabulary Review

Choose the correct word in the sentences below.

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



## Understanding Key Concepts

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

13. Which of the following is not one of the six basic nutrients?
  - a. Carbohydrates
  - b. Fiber
  - c. Protein
  - d. Vitamins
14. Your body uses carbohydrates by breaking them down into
 

a. sugars.	c. fatty acids.
b. amino acids.	d. water.





15. About what percentage of your daily calories should come from fat?
- 10 to 15 percent
  - Less than 25 to 35 percent
  - At least 30 percent
  - 50 to 65 percent

## Thinking Critically

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

16. **Describe.** How does fiber benefit your body?
17. **Explain.** Why is it dangerous to consume too much of a fat-soluble vitamin?
18. **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.*

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

### Understanding Key Concepts

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

22. Which food group band in MyPyramid is largest?
- Grains
  - Fruits
  - Milk
  - Meat and beans

23. The Dietary Guidelines recommend that teens be physically active for
- 20 minutes, three or more times a week.
  - 30 minutes a day.
  - 50 minutes, five or more times a week.
  - 60 minutes a day.
24. Which method of preparation tends to make food high in fat?
- Baking
  - Broiling
  - Frying
  - Grilling



## Thinking Critically

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

25. **Explain.** How can people who don't eat dairy products get enough calcium every day?
26. **Analyze.** Why is it important to include nutrient-dense foods in your daily eating?
27. **Identify.** Give two examples of healthful snacks.

## LESSON 4

### Vocabulary Review

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

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



# Assessment

## Understanding Key Concepts

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

31. 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
32. 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.

33. Which of the following is *not* one of the four basic steps for preventing foodborne illness?
  - a. Clean
  - b. Chop
  - c. Cook
  - d. Chill



## Thinking Critically

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

34. **Compare and Contrast.** What is the difference between a food that is labeled “low-fat” and one that is labeled “reduced-fat”?
35. **Identify.** What are the usual symptoms of foodborne illness?
36. **Identify.** Name two foods that are common sources of allergens.



## Project-Based

### ASSESSMENT

#### 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 kinds of nutrients.

##### Task

You will work in a small group to write and perform a skit about the six basic nutrients.

##### Audience

Children in elementary grades

##### Purpose

The purpose of the skit is to inform younger students about the six basic nutrients and how the body uses them. The skit will also show which foods provide the body with each of the nutrients.

##### Procedure

- 1 Review the information about the six groups of nutrients discussed in Chapter 5.
- 2 Write a skit with your group that explains what the basic nutrients are, why the body needs them, and which foods can provide them.
- 3 Think of a way to dramatize these facts.
- 4 Select scenery, costumes, and props to enliven the skit.
- 5 Rehearse your skit, using the costumes and props.
- 6 Evaluate the skit and make any necessary revisions.
- 7 Obtain permission to present the skit to classes or children in the elementary grades.



## Math Practice

**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.

Calorie Range		
	Sedentary	Active
Females		
14–18	1,800	2,400
19–30	2,000	2,400
Males		
14–18	2,200	3,200
19–30	2,400	3,000

- What are the approximate calorie needs of a sedentary 16-year-old male?  
A. 1,800 calories      C. 2,200 calories  
B. 2,000 calories      D. 2,400 calories
- 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              C. 2,245,000  
B. 398,000              D. 3,655,000
- About 35 percent of a 16-year-old male's calories should come from carbohydrates. Which most closely matches this number?  
A.  $\frac{1}{4}$                       C.  $\frac{3}{5}$   
B.  $\frac{1}{3}$                       D.  $\frac{5}{7}$



For more test practice, visit [glencoe.com](http://glencoe.com) and complete the Online Quizzes for Chapter 10.

## Reading/Writing Practice

**Understand and Apply.** Read the passage below and then answer the questions.

*Last weekend, after a game of basketball at the local community center, we all went to get a snack from the vending machine. Everything in the machine was high in fat, salt, or sugar. I put my money back in my pocket. My friends said, "Why don't you want anything?"*

*Here's why. Last year, my dad found out he has high blood pressure. He's a bit overweight, so his doctor told him to cut out foods high in salt and fat. My parents didn't tell me to stop eating snacks like chips and cookies, but Dad's condition helped me understand that what I eat can affect my health.*

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

### National Education Standards

**Math:** Number and Operations, Data Analysis  
**Language Arts:** NCTE 1, NCTE 3, NCTE 4