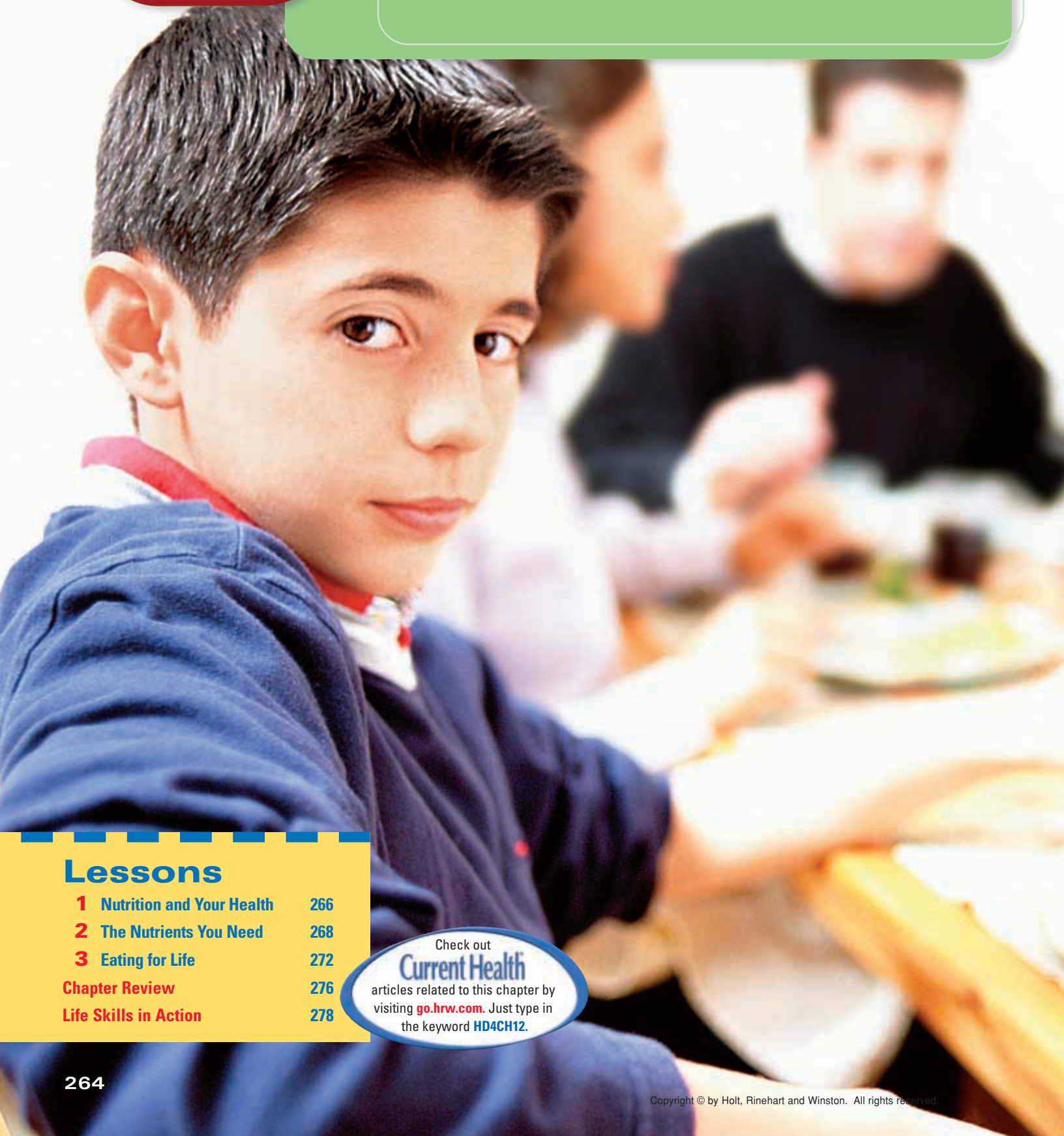


CHAPTER 12

Nutrition



Lessons

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Check out
Current Health
articles related to this chapter by
visiting go.hrw.com. Just type in
the keyword **HD4CH12**.

“ My friends buy chips and soft drinks from the vending machine every day after school.

My mom lets me buy a snack only on Fridays. She says that eating too much food from the vending machine is unhealthy. ”

Health IQ

PRE-READING

Answer the following true/false questions to find out what you already know about nutrition. When you've finished this chapter, you'll have the opportunity to change your answers based on what you've learned.

1. You get the energy you need for your daily activities from the food you eat.
2. You need to drink only two glasses of water every day.
3. Your nutrition affects your overall health.
4. To be healthy, you have to cut all the fat from your diet.
5. The Nutrition Facts label shows you how much of each food you should eat.
6. The food you eat must be broken down into a different form before your body can use it.
7. Practicing good nutrition means that you can eat one type of food every day as long as the food is healthy.
8. You get all the water you need by drinking one soft drink each day.
9. The Food Guide Pyramid shows you if a food is a good source of nutrients.
10. There are four food groups.
11. The Dietary Guidelines are a set of suggestions you can follow to develop a healthy lifestyle.
12. A small amount of fat in your diet is good for your body.
13. The meat, poultry, fish, dry beans, eggs, and nuts group is the largest group on the Food Guide Pyramid.

ANSWERS: 1. True; 2. False; 3. True; 4. False; 5. False; 6. True; 7. False; 8. False; 9. False; 10. False; 11. True; 12. True; 13. False

Lesson 1

Nutrition and Your Health

What You'll Do

- Describe how nutrition affects your overall health.
- Explain how your body uses food.

Terms to Learn

- nutrient

Start Off Write

How does nutrition affect your daily activities?

Figure 1 Practicing good nutrition helps your body stay active and gives you the nutrients you need to grow.



What do you think food does for your body? You know that you need to eat when you are hungry, but why do you need food?

You need food because food contains substances that your body uses to work properly. Many of these substances provide your body with the energy it needs to grow, heal, and keep its systems working.

What Is Nutrition?

The substances in food that promote normal growth, maintenance, and repair in your body are called **nutrients** (NOO tree uhnts). Because your body gets nutrients from food, the food you eat can affect your overall health. Nutrition is the study of how our bodies use the food we eat to keep us healthy. Your nutrition affects the way your body carries out normal body functions. It also affects your growth and the way your body repairs itself.

In general, eating too much or not eating enough food is not healthy. Also, eating the right combination of healthy foods is important. When you do this, you are practicing good nutrition.

Your nutrition affects your daily activities. Practicing good nutrition gives you the energy you need to play with your friends, to study for school, and to be physically active.

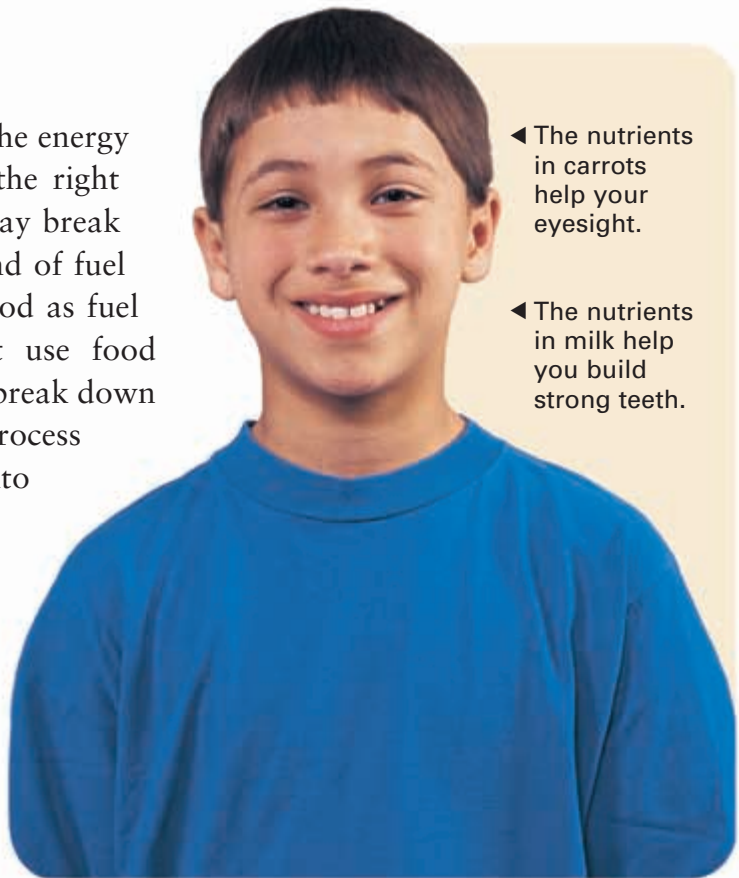


How Your Body Uses Food

Like a car, your body needs fuel for the energy it needs to run. If you do not use the right kind of fuel for your car, your car may break down. Your body needs the right kind of fuel to run properly. You can think of food as fuel for your body. Your body cannot use food directly for energy. Your body has to break down food into nutrients. *Digestion* is the process in which your food is broken down into a form that your body can use for energy.

Imagine that you are having a peanut butter and jelly sandwich for lunch. When you chew your sandwich, you break it into smaller chunks. When you swallow, the sandwich goes down a tube, called your *esophagus*, and into your stomach. In your stomach, the sandwich is mixed with strong stomach juices. These juices break the sandwich into even smaller parts. The sandwich is now like a thick milkshake. This liquid food passes from your stomach into your intestines. In your intestines, your sandwich is broken down into nutrients.

The nutrients are absorbed into your blood and delivered to tissues throughout your body. Finally, your body can use some of the nutrients for energy. Your body uses the other nutrients to maintain your health. For example, some nutrients are used to build strong bones and teeth. Some are used to keep your hair, skin, and nails healthy.



◀ The nutrients in carrots help your eyesight.

◀ The nutrients in milk help you build strong teeth.

Figure 2 Your body uses the nutrients in food to stay healthy.

Lesson Review

Using Vocabulary

1. What is a nutrient?

Understanding Concepts

2. Describe how your body uses food.

3. How does your nutrition affect your overall health?

Critical Thinking

4. **Applying Concepts** How is your body like a car?

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Lesson 2

The Nutrients You Need

What You'll Do

- Describe each of the six classes of essential nutrients.
- Identify foods that are good sources of each nutrient.

Terms to Learn

- Calorie
- carbohydrate
- protein
- fat
- vitamin
- mineral

Start Off Write

How much fat does your body need to stay healthy?

Your body needs the nutrients in food to grow and to stay healthy. There are many different nutrients, and each one helps your body in a different way. But what are these nutrients, and what do they do for you?

Your body can make some of the nutrients you need. But, most of the nutrients you use come from the food you eat. Your body cannot work properly without these nutrients. So, they are called the *essential nutrients*. There are six classes of essential nutrients.

The Six Classes of Essential Nutrients

The six classes of essential nutrients are *carbohydrates* (CAHR boh HIE drayts), *proteins* (PROH TEENZ), *fats*, *vitamins* (VIET uh minz), *minerals* (MIN uhr uhlz), and *water*. Carbohydrates, proteins, and fats are nutrients that give your body energy. The energy you get from these nutrients is measured in units called **Calories**. The number of Calories in food is how much energy that food provides. Vitamins, minerals, and water do not have any Calories. Instead, these nutrients help your body use the other nutrients. For example, water is important because it helps control

your body temperature and transports other nutrients through your body. Together, these nutrients help your body work properly. Because the essential nutrients come from different foods, you should eat a variety of foods each day. This will help you get all the nutrients you need.



Figure 3 Have you ever been confused about the essential nutrients in your cereal? These nutrients are good for you, and you can get them only from food!

Carbohydrates

Carbohydrates give you energy to be physically active. A **carbohydrate** is a chemical that is made up of one or more sugars chained together. The two kinds of carbohydrates are sugars and starches. Sugars are found in foods such as table sugar, honey, and fruits. Foods that have sugars are usually sweet. Starches are made up of many sugars chained together. Your body breaks down starches into sugars. Starches are found in foods such as rice, bread, and pasta. Some starches are good sources of fiber. Fiber is a part of a healthy diet and can be found in whole grain foods such as brown rice and whole wheat bread.



Carbohydrates

Proteins

Nutrients that help build and heal body tissues are called **proteins**. Proteins also help build strong muscles. Proteins are made up of smaller parts called *amino acids* (uh MEE noh AS idz). Your body breaks down the proteins you eat into amino acids. Think of amino acids as building blocks. Your body uses these building blocks to form new proteins. Your body uses the proteins to build and repair your tissues. Chicken, fish, pork, and beef are sources of protein. You can also get proteins from beans, nuts, tofu, cheese, eggs, and soy milk.



Proteins

Fats

Your body needs a small amount of fat to stay healthy. **Fats** are energy-storage nutrients that help the body store some vitamins. Fats also help your body produce hormones (HAWR MOHNZ). Fats are the substances that make many foods smell and taste good. Fats provide a lot of energy. But your body needs only a small amount of fat to work properly. Some fats are liquid, while others are solid. Liquid fats are found in cooking oils and salad dressings. Solid fats are found in foods such as butter, sour cream, and cream cheese. Solid fats are also found in meats such as beef and pork. Fried foods, ice cream, creamy dips, potato or corn chips, and most desserts are high in fats.



Fats

Figure 4 Here are some examples of foods that are sources of carbohydrates, proteins, and fats.

SCIENCE ACTIVITY

Did you know that minerals such as iron and calcium are elements found in nature? You may have learned about these elements in science class. The Periodic Table lists all the elements. You can find a Periodic Table in a science book or science classroom. Locate the minerals listed in this chapter on the Periodic Table. Then research to find out what foods are good sources of each mineral.






Vitamins

Without vitamins, your body will not be able to function properly. **Vitamins** are organic compounds that control several body functions. Vitamins help your body use the energy provided by other nutrients. Your body needs only a very small amount of vitamins each day. There are many types of vitamins. Vitamin C helps your body fight germs. Vitamin D helps your body build strong bones. Vitamin A helps keep your eyes healthy. One type of vitamin B can help with your memory and concentration. As you can see, vitamins are necessary for good health. Almost all foods contain some vitamins; whole grains, meats, fruits, vegetables, and dairy products are good sources of vitamins.

Minerals

Like vitamins, your body needs minerals to stay healthy. **Minerals** are elements that are necessary for good health. However, you need only a small amount every day to stay healthy. Examples of minerals include iron, calcium (KAL see uhm), sodium, and potassium (poh TAS ee uhm). Iron helps your blood transport oxygen through your body. Calcium is important for building and keeping strong bones. Sodium and potassium help regulate blood pressure. Minerals can be found in many kinds of foods, such as those shown in Table 1.

TABLE 1 Good Sources of Some Important Vitamins and Minerals

Name		What It Does For Your Body	Where You Get It
Vitamin A		necessary for healthy eyes and skin	carrots, sweet potatoes, squash
Vitamin C		helps your body fight germs that cause illness	orange juice, broccoli, papaya
Vitamin B-12		aids in concentration, memory, and balance	fish, milk and milk products, eggs, meat, poultry
Calcium		necessary for healthy, strong bones and teeth	milk, cheese, yogurt, sardines
Iron		necessary for healthy blood; prevents tiredness	tofu, spinach, blackeyed peas, red meat

Water

If you don't have water for a couple of days, you may die! More than half of your body is made of water. Why does your body need so much water? Your body needs the water for many different functions. You need water to help you digest your food and to get rid of waste. Water helps your body transport the nutrients you get from other foods. Finally, water helps your body keep a steady temperature. For example, imagine you have been playing outside and are now hot and sweaty. The sweat is made of water. The sweat dries on your skin, and as a result it cools off your body.

Your body loses water when you sweat and when you use the bathroom. You have to replace the water that you lose each day. To do this, you should drink about 8 to 10 glasses of water every day. If you are very active, play sports, or dance, you should drink even more water. If you don't replace the water your body loses, you run the risk of drying out. This is called *dehydration* (DEE hie DRAY shuhn). If you dehydrate, your body cannot function properly. So, make sure to drink enough water!



LIFE SKILLS ACTIVITY

PRACTICING WELLNESS

Think of five ways to drink more water every day. Make a small poster that lists your ideas. Hang the poster in your locker or your room to help remind yourself to drink more water!

Figure 5 Replacing the water you have lost will help keep you from drying out.

Lesson Review

Using Vocabulary

1. What are vitamins?
2. What are carbohydrates?

Understanding Concepts

3. Explain what proteins do for your body. Give two examples of foods that are sources of protein.

4. Why is water such an important nutrient?
5. What are fats, and what do they do for your body?

Critical Thinking

6. **Analyzing Ideas** Why is it important to eat a variety of foods?

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A computer mouse icon.

Lesson 3

Eating for Life

You always hear about eating the right foods. But what does that mean? And how do you know how much of the right foods to eat?

Three guides can help you make healthy food choices every day. These guides are the Food Guide Pyramid, the Nutrition Facts label, and the Dietary Guidelines for Americans.

What You'll Do

- Identify the food groups shown on the Food Guide Pyramid.
- Explain how to read a Nutrition Facts label.
- Describe the Dietary Guidelines for Americans.

Terms to Learn

- Food Guide Pyramid
- Nutrition Facts label
- Dietary Guidelines for Americans

Start Off Write

Why is eating plenty of fruits and vegetables important?

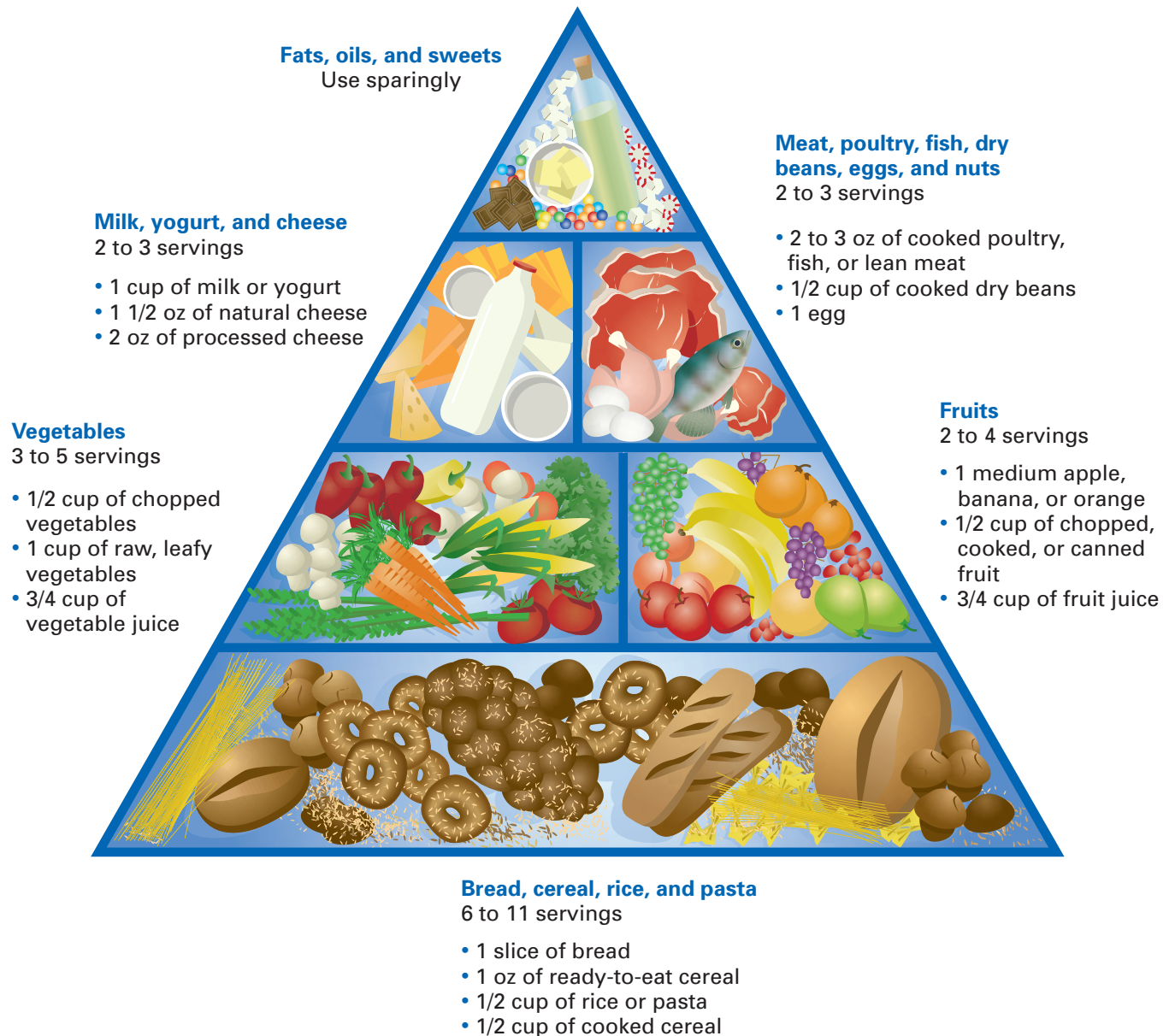
The Food Guide Pyramid

The Food Guide Pyramid is shown on the next page. The **Food Guide Pyramid** is a tool that shows you which foods to eat and how much of each type of food you should eat every day. The pyramid is made up of six food groups. A food group is made up of foods that contain similar nutrients. Each food group has its own block. Each block is a different size. The size of each block shows you how much food from that food group you should eat. The larger the block, the more food from that food group you should eat. The number of servings for each group tells you how much food from that food group you should eat daily. A serving is the amount of food that is considered healthy to eat.

Figure 6 The Food Guide Pyramid can help you make healthy food choices wherever you choose to eat.



Figure 7 The Food Guide Pyramid



Hands-on **ACTIVITY**

LET THE PYRAMID BE YOUR GUIDE

1. Write down everything that you eat in 1 day.
2. Compare what you ate to the Food Guide Pyramid.

Analysis

1. Make a chart showing how many servings of each food group you ate.

2. Did you get enough servings of each food group? If not, which food groups did you miss? Write down three ideas that will help you meet your daily servings of each food group.

Health Journal

Save the Nutrition Facts labels from one of your favorite snacks. In your Health Journal, write down the amount of carbohydrates, fats, and proteins you are eating. Is your snack helping you get the right amount of these nutrients?

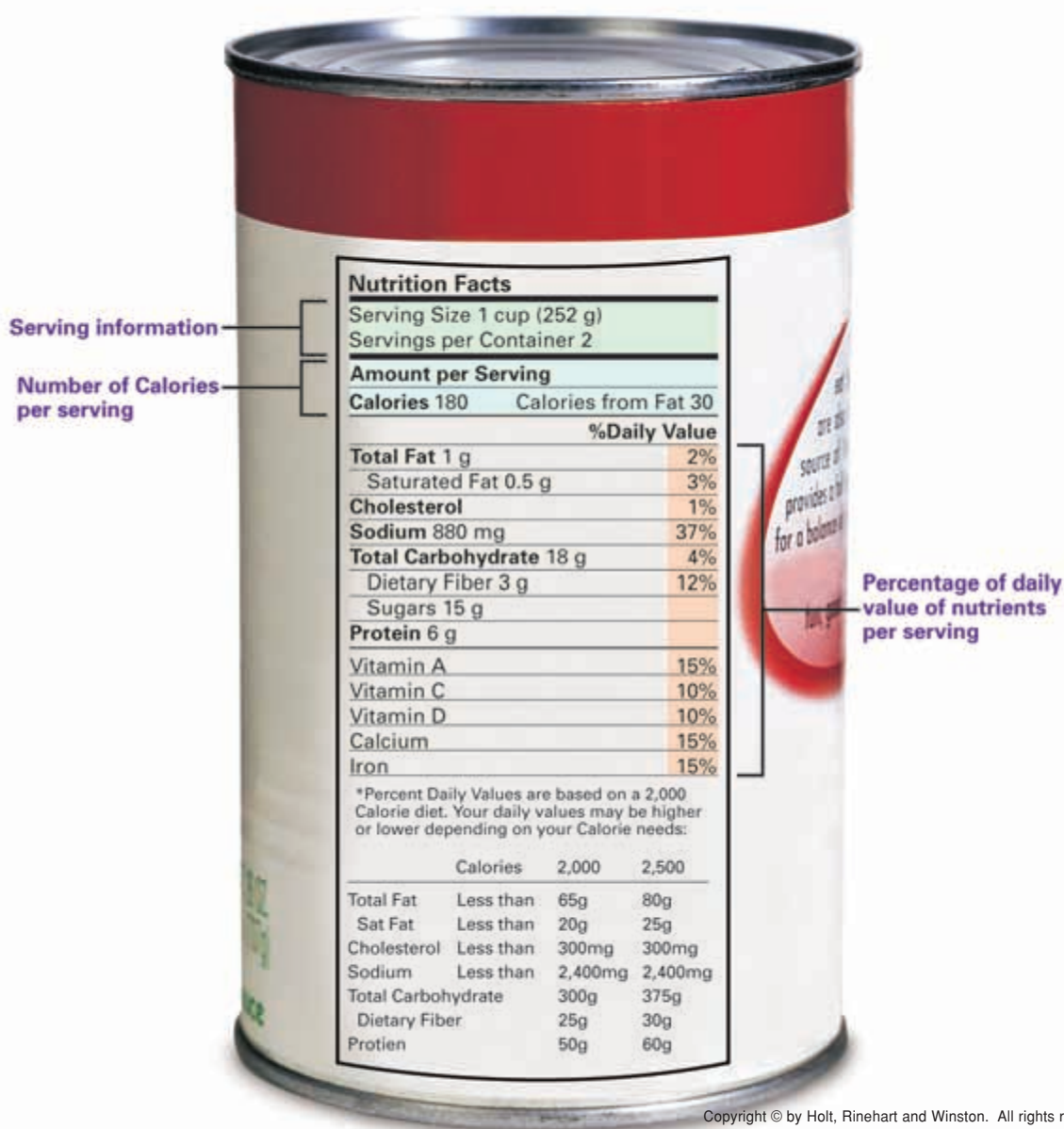


The Nutrition Facts Label

The Nutrition Facts label is a good source of nutrition information. The **Nutrition Facts label** is a label found on the outside packages of food that states the number of servings in the container, the number of Calories in each serving, and the amount of nutrients in each serving.

The Nutrition Facts label provides information about the nutrients in the food. You can tell if the food is a good source of a nutrient by looking at the percent daily value of the nutrient. The daily value of a nutrient is the amount of your daily nutrient need that the food contains. A daily value of 5 percent or less means that the food is low in that nutrient. A daily value of 20 percent or more means that the food is high in that nutrient. You can use this information to make healthy food choices.

Figure 8 The Nutrition Facts Label



Guidelines for Good Nutrition

The Dietary Guidelines for Americans are another tool that you can use to make healthy food choices. The **Dietary Guidelines for Americans** are a set of tips that help you practice good nutrition and form a healthy lifestyle. The guidelines suggest that you aim to be physically active each day. So, you should try to take part in activities that make you move your body. Activities can include playing sports, playing outside, riding bikes, dancing, or in-line skating. Also, choose healthy foods by using the Food Guide Pyramid. Eat plenty of whole grains, fresh fruits, and vegetables. If you are not getting enough fruits and vegetables every day, look at Table 2 for some suggestions. Choose foods that are low in salt, sugar, and fat. Make sure your food is fully cooked. Store foods properly by keeping cold foods cold and by refrigerating hot foods soon after you are finished with them. Following the Dietary Guidelines for Americans will help you develop healthy eating habits.

WARNING!

Sneaky Servings

It may seem that there aren't many grams of fat or many Calories in that bag of corn chips. But take a closer look, because the number of servings per container may be twice as much as you thought! The information on the label is for one serving, but one small bag of corn chips may contain up to 2.5 servings!

TABLE 2 Ideas for Eating More Fruits and Vegetables

Snack on raw, crunchy vegetables such as carrot or celery sticks.

Add sliced peaches, bananas, or berries to your breakfast cereal.

Drink a glass of fruit juice or tomato juice each day.

Eat a salad made of dark, leafy greens and chopped vegetables with dinner every night.

Include fresh fruit in your dessert. For example, try eating gelatin or yogurt with fresh fruit.



Lesson Review

Using Vocabulary

1. What is the Food Guide Pyramid?
2. What is a Nutrition Facts label?

Understanding Concepts

3. Why is it a good idea to follow the Dietary Guidelines for Americans?

4. List three ways you can include more fruits and vegetables in your diet.

Critical Thinking

5. **Analyzing Ideas** Explain how you would use a Nutrition Facts label to decide on which snack to eat before playing soccer.

Chapter Summary

■ Nutrients are the substances in food that your body needs for normal growth, maintenance, and repair. ■ Because your body cannot make some nutrients, you have to get these nutrients from the food you eat. These nutrients are called the *essential nutrients*. ■ Carbohydrates, fats, and proteins are the essential nutrients that provide your body with energy. ■ Vitamins and minerals control many body functions and help your body use the other essential nutrients. ■ Water is used to transport nutrients and regulate body temperature. ■ The Food Guide Pyramid shows you which foods to eat and how much of each food you should eat each day. ■ The Nutrition Facts label shows you how many servings of food are in a package and how many Calories and nutrients are found in each serving. ■ The Dietary Guidelines for Americans are a set of suggestions that can help you make healthy food choices.

Using Vocabulary

For each sentence, fill in the blank with the proper word from the word bank provided below.

Dietary Guidelines for Americans	vitamins
nutrients	fats
Food Guide Pyramid	Nutrition Facts label
minerals	proteins
Calories	carbohydrates

- 1 The substances in food that your body needs for normal growth, maintenance, and repair are called ____.
- 2 The energy provided by carbohydrates, proteins, and fats is measured in units called ____.
- 3 Nutrients called ____ help build healthy body tissues.
- 4 Chemicals made of one or more sugars chained together, or ____, give you energy to be physically active.
- 5 ____ store energy and some vitamins.

- 6 If you want to plan a menu for a day, you can use the ____ to help you make healthy food choices.
- 7 You can find the number of servings of a food and how many Calories and nutrients are in each serving by looking at the ____.

Understanding Concepts

- 8 Explain the process of digestion.
- 9 What do proteins do for your body?
- 10 What are the Dietary Guidelines for Americans, and why are they important?
- 11 How can you use the Nutrition Facts label to find out if a food is high in calcium?
- 12 Describe minerals, and give three examples of foods that are good sources of minerals.
- 13 List the six classes of essential nutrients. List two foods that are good sources of each.
- 14 Identify the food groups shown on the Food Guide Pyramid.

Critical Thinking

Analyzing Ideas

- 15 Explain how you would use the Food Guide Pyramid to plan a menu for 1 day.
- 16 Should you eat one kind of food every day? Explain your answer.
- 17 Most packaged foods have a Nutrition Facts label on the outside of the package. Why should you look at the number of servings per container?
- 18 Meat, chicken, and fish are considered sources of protein. However, many people do not eat these foods. What other sources of protein can a person choose?

Making Good Decisions

- 19 Imagine that you are at a restaurant and you have two choices for lunch. The first choice is a cheeseburger, french fries and a soda. The second choice is a grilled chicken sandwich, a plate of fresh fruit, and a glass of fruit juice. According to the Dietary Guidelines for Americans, which meal should you choose? Explain your answer.
- 20 You are on your way to soccer practice, and you are looking for a snack. Your dad packed an extra apple in your lunch bag. However, you realize that you have some pocket change. You have enough money to buy chips from the vending machine. Which snack should you choose—the apple or the chips? Explain your answer.

Interpreting Graphics

Nutrition Facts	
Serving Size 8 fl oz (240 mL)	
Servings per Container 2.5	
Amount per Serving	
Calories 100	
	% Daily Value
Total Fat 0 g	0%
Cholesterol 0 mg	0%
Sodium 35 mg	1%
Carbohydrates 27 g	9%
Protein 0 g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	0%

Use the Nutrition Facts label for a soft drink above to answer questions 21–25.

- 21 How many Calories are in the container of this soft drink?
- 22 Is this soft drink high in carbohydrates? Explain your answer.
- 23 Although this soft drink contains no fat, is it a healthy food? Explain your answer.
- 24 How many grams of carbohydrate are in the container of this soft drink?
- 25 How many ounces of the soft drink are in the container?

Reading Checkup

Take a minute to review your answers to the Health IQ questions at the beginning of this chapter. How has reading this chapter improved your Health IQ?

Being a Wise Consumer

Going shopping for products and services can be fun, but it can be confusing, too. Sometimes, there are so many options to choose from that finding the right one for you can be difficult. Being a wise consumer means evaluating different products and services for value and quality. Complete the following activity to learn how to be a wise consumer.

Snack Bar Shopping

Setting the Scene

Tonight, Keiko is spending the night at her friend Mica's house. Mica's parents drive the two teens to the grocery store so they can buy snack bars to eat during the sleepover. Keiko and Mica start looking at all of the choices. They both want to eat something healthy that is also tasty.

Purple Mountain Granola Bar

Nutrition Facts		
Serving Size: 1 bar 		
Amount per Serving		
Calories 140		
%		Daily Value
Total Fat	4 g	6%
Cholesterol	0 mg	0%
Sodium	110 mg	5%
Carbohydrates	24 g	8%
Sugars	15 g	

Amber Grain Granola Bar

Nutrition Facts		
Serving Size: 1 bar 		
Amount per Serving		
Calories 110		
%		Daily Value
Total Fat	2 g	3%
Cholesterol	0 mg	0%
Sodium	80 mg	3%
Carbohydrates	23 g	8%
Sugars	10 g	

ACT 1

The 5 Steps of Being a Wise Consumer

1. List what you need and want from a product or a service.
2. Find several products or services that may fit your needs.
3. Research and compare information about the products or services.
4. Use the product or the service of your choice.
5. Evaluate your choice.

Guided Practice

Practice with a Friend

Form a group of three. Have one person play the role of Keiko and another person play the role of Mica. Have the third person be an observer. Walking through each of the five steps of being a wise consumer, role-play Keiko and Mica's selection of snack bars. Keiko and Mica should discuss the kinds of snacks they like to eat. When you get to step 3, look at the Nutrition Facts labels above to compare the nutritional value of two snack bars. The observer will take notes, which will include observations about what the people playing Keiko and Mica did well and suggestions of ways to improve. Stop after each step to evaluate the process.

Independent Practice

Check Yourself

After you have completed the guided practice, go through Act 1 again without stopping at each step. Answer the questions below to review what you did.

1. What specific things could Keiko and Mica look for in their snack bars? (Think of things like the ingredients or the amount of fat in the snack bars.)
2. Which snack bar is healthier? Use the Nutrition Facts labels to explain your answer.
3. After eating their snack bars, how could Keiko and Mica evaluate their choice?
4. What do you consider when you are selecting food at the grocery store?



On Your Own

After eating their dinners, Keiko and Mica decide that they want to go shopping. Mica's parents drive them to the mall. Keiko wants to buy a new cell phone so the two of them go to the electronics store and start looking at different phones. Keiko tells Mica that she wants to get a small cell phone that is not too expensive. Make a flow-chart showing how Keiko could use the five steps of being a wise consumer as she shops for a cell phone.

