

Bones and Muscles

Guide to Reading

Building Vocabulary

Write each term below in your notebook. As you come across each term in your reading, write its definition.

- skeletal system (p. 181)
- joints (p. 182)
- muscular system (p. 183)

Focusing on the Main Ideas

In this lesson, you will learn to

- **explain** the parts and functions of the skeletal system.
- **explain** the parts and functions of the muscular system.
- **determine** ways to protect the bones and muscles.

Reading Strategy

Comparing As you read, look for similarities and differences between the skeletal system and the muscular system.

The Skeletal System

Your bones are living tissue that make up the organs of your **skeletal system**. This is *a body system consisting of bones and the tissues connecting them*. Your bones are like the steel girders that support a skyscraper. They form your body's framework. They protect its soft parts from injury. Your bones also allow you to stand and move, with the help of your muscles. Adults have 206 separate bones in their bodies.

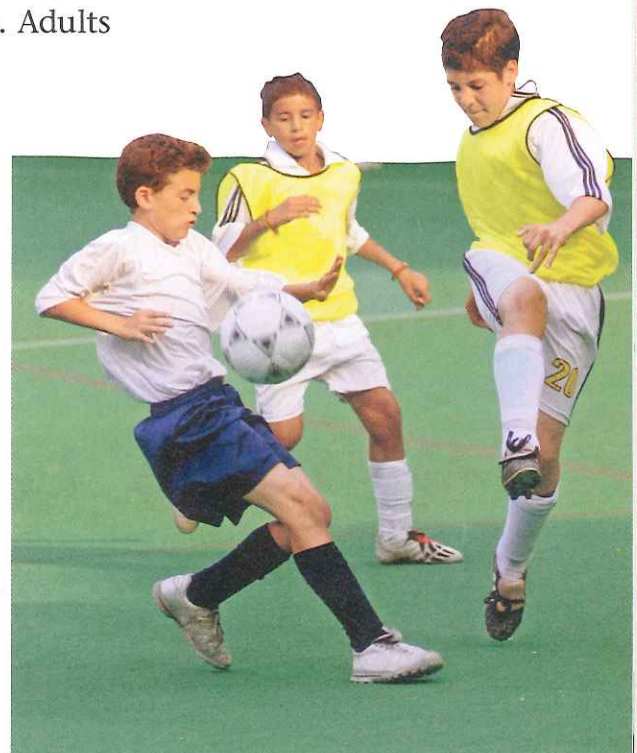
Bones

The bones inside your body are made up of living tissue and cells. Because bone tissue is alive, it is always being destroyed and remade to keep your bones strong. Bones are hard on the outside and have spongy tissue on the inside. This tissue produces blood cells for the circulatory system. Bones also store minerals such as calcium. Calcium strengthens your bones and teeth. When your body needs calcium, the bones release small amounts into the blood. The blood takes the calcium to where it is needed in the body.

- ▶ Regular physical activity helps keep your bones healthy.
What is another way to strengthen your bones?

Quick Write

Write a paragraph describing why you think muscles sometimes get sore after exercise or other physical activity.



Joints

Joints are places where one bone meets another. Different joints move in different ways. Some joints pivot, like your neck. The end of one bone rotates inside a ring formed by another. This joint can move up and down and from side to side. A hinge joint moves in only one direction like a door hinge. Your knee and elbow are examples of hinge joints.

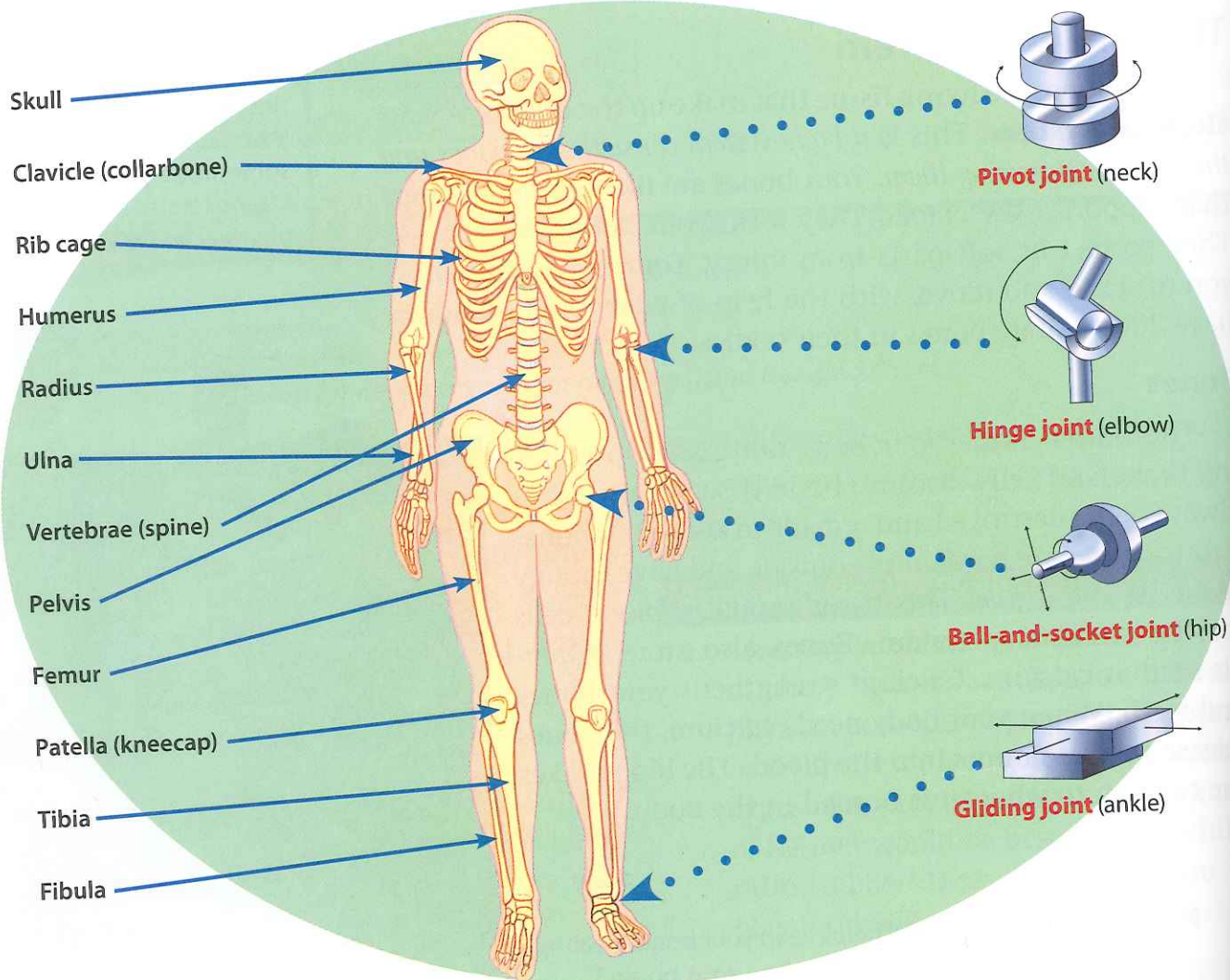
In ball-and-socket joints, the round end of one bone moves inside another's cup-shaped opening. A ball-and-socket joint can move in all directions. Your hip is an example of a ball-and-socket joint. Gliding joints allow one part of a bone to slide over another bone. They also move in a back-and-forth motion. Gliding joints are found in your wrists and ankles. **Figure 7.4** shows the four major types of joints as well as important bones.

▼ **FIGURE 7.4**

THE SKELETAL SYSTEM

Notice the different shapes of different bones. **Which of these bones have joints that pivot? Which have hinge joints?**

Reading Check Define What are joints?





Health Skills Activity

Practicing Healthful Behaviors

Building Strong Bones

Your body needs plenty of calcium to keep your bones strong. Calcium is a mineral that makes bones hard. As a teen, your body is storing calcium to keep your bones healthy and strong as you get older. By eating calcium-rich foods, you help your body prepare for adulthood. The foods in the picture are all good sources of calcium.



With a Group

Create a plan for a meal that is rich in calcium. Share your meal plan with the other groups so each student in class will have a variety of calcium-rich meals to choose from.

The Muscular System

Your **muscular system** is made up of *all the muscles in your body*. Your muscles move your bones, pump your blood, and move food through your stomach and intestines.

There are three main types of muscles: skeletal, cardiac, and smooth. Skeletal muscles connect to and move your bones. You have this type of muscle in your arms, face, abdomen, back, and legs. They are considered *voluntary muscles* because you are able to control them. You are able to run, for example, by controlling the skeletal muscles in your legs.

Cardiac muscles are **located** only in the heart. They pump blood into and out of your heart. Cardiac muscles are *involuntary*. They move automatically without you having to think about them.

Smooth muscles are found in many of your internal organs. The stomach, intestines, bladder, and blood vessels all have smooth muscles. Like cardiac muscles, smooth muscles are *involuntary* muscles. They slowly contract and relax on their own. **Figure 7.5** on the next page shows important muscle groups of the body.

Academic Vocabulary

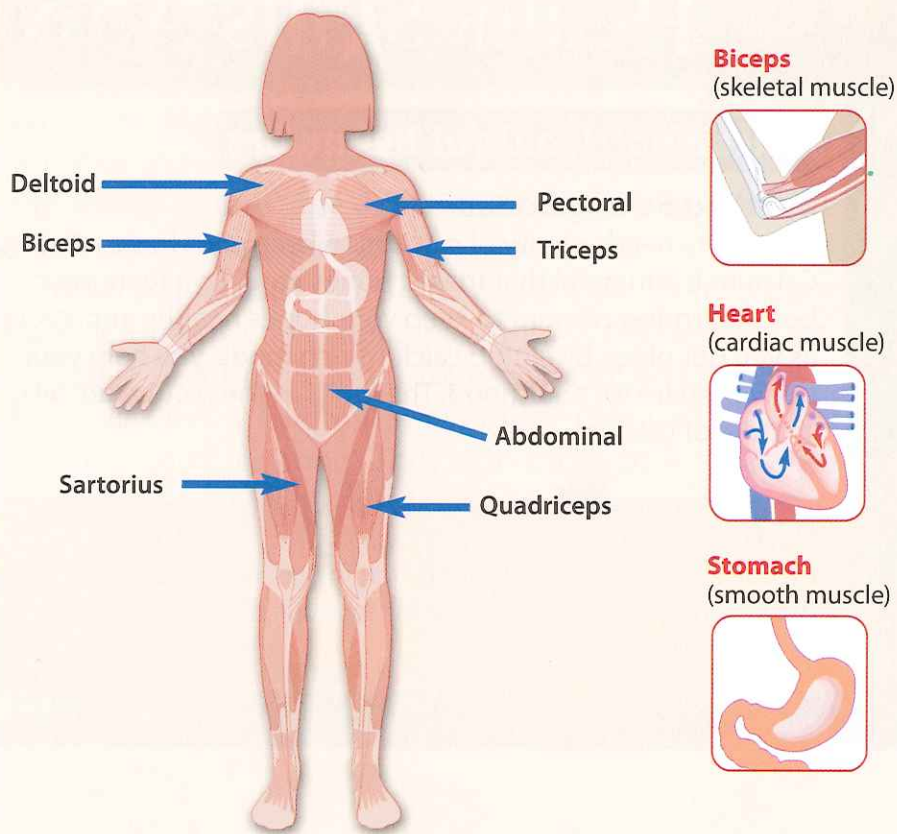
located (LOH key ed)
(verb) found. *Your heart is located inside your chest.*

▶ **FIGURE 7.5**

THE MUSCULAR SYSTEM

Muscles do many different jobs in the body.

What are the three major types of muscles?



Go Online

Visit glencoe.com and complete the Interactive Study Guide for Lesson 2.

Lesson 2 Review

After You Read

Review this lesson for new terms, major headings, and Reading Checks.

What I Learned

1. **Vocabulary** What is the *skeletal system*? What does this system do?
2. **Identify** Name the four types of joints. Briefly describe each.
3. **Explain** Tell the difference between voluntary and involuntary muscles.

Thinking Critically

4. **Apply** Juan slipped on the ice. When he stood up, his leg looked fine yet it hurt. Why do you suppose this was the case?

5. **Analyze** Do you think the muscles responsible for activities such as breathing and digesting food are voluntary or involuntary? Are they smooth or skeletal muscles?

Applying Health Skills

6. **Practicing Healthful Behaviors** During most sports, your body parts are frequently in motion. Think of a sport, then list ways to protect the bones and muscles from injury when playing that sport.