Name _____ Date _____ Class _____

The Skeletal System

Guide for Reading

- What are the functions of the skeleton?
- What role do joints play in the body?
- What are the characteristics of bone, and how can you keep your bones strong and healthy?

The **skeleton** is made up of all the bones in one's body. **Your skeleton has five major functions. It provides shape and support, enables you to move, protects your organs, produces blood cells, and stores minerals and other materials until your body needs them.** The backbone, or vertebral column, is the center of the skeleton. The backbone is made up of 26 small bones, or **vertebrae** (singular *vertebra*). If your backbone were just one bone, you would not be able to bend or twist.

A **joint** is a place in the body where two bones come together. **Joints allow bones to move in different ways.** Immovable joints connect bones in a way that allows little or no movement. Movable joints allow the body to make a wide range of movements. The bones in movable joints are held together by a strong connective tissue called a **ligament. Cartilage** is a connective tissue that is more flexible than bone.

Bones are complex living structures that undergo growth and development. A thin, tough membrane covers all of a bone except the ends. Blood vessels and nerves enter and leave the bone through the membrane. Beneath the membrane is a layer of **compact bone,** which is hard and dense, but not solid. Small canals run through the compact bone, carrying blood vessels and nerves from the bone's surface to the living cells within the bone. Just inside the compact bone is a layer of **spongy bone,** which has many small spaces within it. Spongy bone is also found at the ends of the bone. The spaces in bone contain a soft connective tissue called **marrow.** There are two types of marrow—red and yellow. Red bone marrow produces blood cells. Yellow marrow stores fat that serves as an energy reserve.

The bones of your skeleton are both strong and lightweight. Bones are hard because they are made up of two minerals—phosphorus and calcium. New bone tissue forms continually throughout your life.

A combination of a balanced diet and regular exercise are important for a lifetime of healthy bones. As people become older, their bones begin to lose some minerals. Mineral loss can lead to **osteoporosis,** a condition in which the body's bones become weak and break easily. Regular exercise and a diet rich in calcium can help prevent osteoporosis.