

**THE SKELETAL AND MUSCULAR SYSTEMS**  
**Video Quiz**

**Directions:** At the conclusion of the videotape, there will be a short quiz with these questions. Write your answers in the space provided. Use the back of this sheet if necessary.

Questions 1: An adult has how many bones in his/her skeletal system?

- a. 100                      b. 300                      c. 206                      d. 210

Question 2: Some animals have skeletons on the outside of their bodies. This kind of skeleton is called an \_\_\_\_\_.

- a. exoskeleton              b. internal skeletons              c. endoskeletons

Question 3: Connective tissues connect muscles to bones. These connective tissues are called \_\_\_\_\_.

- a. ligaments              b. tendons              c. exoskeletons              d. cartilage

Question 4: Bones are attached to one another with a tissue called \_\_\_\_\_.

- a. ligaments              b. tendons              c. exoskeletons              d. cartilage

Question 5: A soft tissue found inside some of the bones of the skeletal system is where new blood cells are made. The name of this tissue is \_\_\_\_\_.

- a. marrow              b. tendon              c. cartilage              d. ligament

Question 6: The elbow is an example of which kind of joint?

- a. ball-and-socket              b. hinge              c. pivot              d. fixed

Question 7: The joint between the shoulder and upper arm is an example of which kind of joint?

- a. ball-and-socket              b. hinge              c. pivot              d. fixed

Question 8: The bones of the skull are an example of which kind of joint?

- a. ball-and-socket              b. hinge              c. pivot              d. fixed

Question 9: Name the three kinds of muscles found in human beings.

Question 10: How are involuntary and voluntary muscles different from each other?

**THE SKELETAL AND MUSCULAR SYSTEMS****Vocabulary**

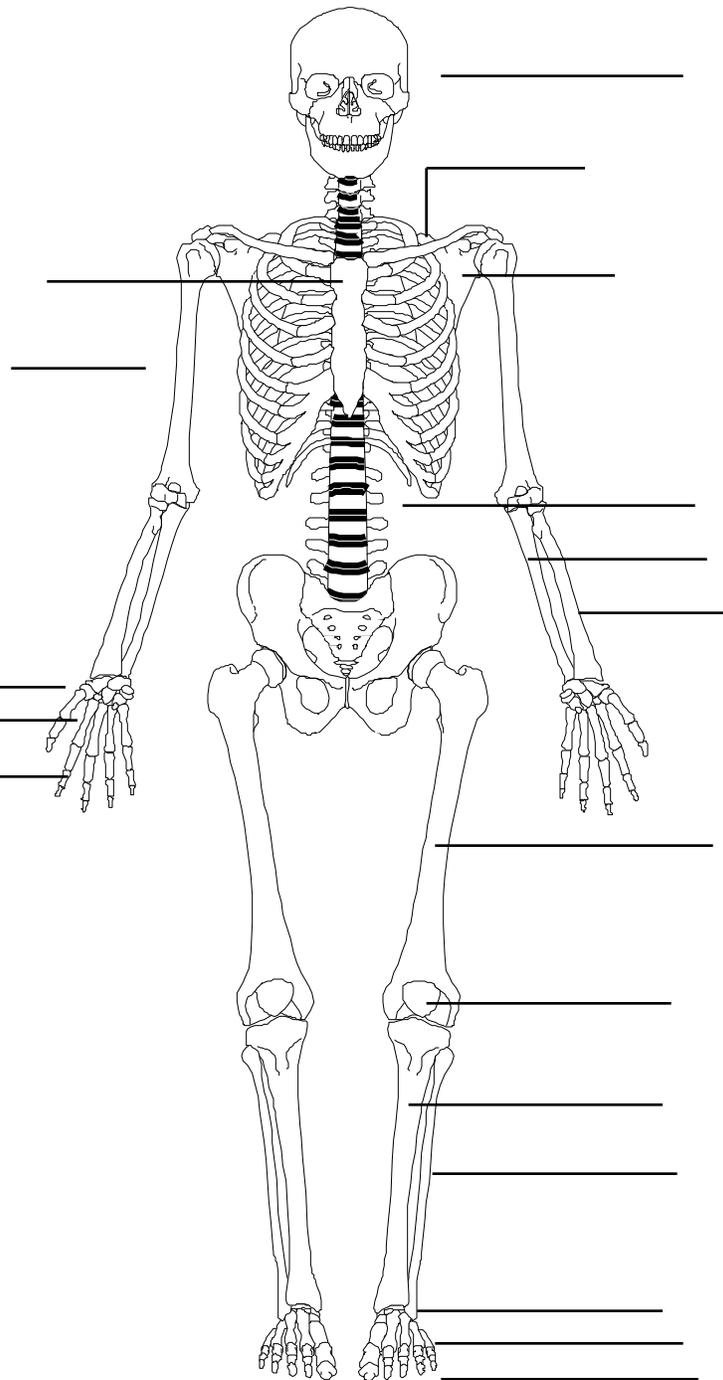
**Directions:** Write a definition for each of the terms listed below. Use the back of this sheet if necessary.

1. bone-
2. tendon-
3. ligament-
4. bone marrow-
5. cartilage-
6. joint-
7. sprain-
8. fracture-
9. skeletal muscle-
10. cardiac muscle-
11. smooth muscle-

**THE SKELETAL AND MUSCULAR SYSTEMS**  
**The Skeleton**

**Directions:** Place the words listed below next to the lines on the skeletal diagram.

- |                  |
|------------------|
| Clavicle         |
| Humerous         |
| Sternum          |
| Vertebral column |
| Tibia            |
| Femur            |
| Patella          |
| Fibula           |
| Skull            |
| Scapula          |
| Ulna             |
| Radius           |
| Phalanges        |
| Metacarpals      |
| Carpals          |
| Phalanges        |
| Metatarsals      |
| Tarsals          |



## THE SKELETAL AND MUSCULAR SYSTEMS

### Joints

A joint is a place at which two bones meet. There are two kinds of joints, called movable and immovable. Immovable joints are found where bones have fused together, such as in the skull. Moveable joints allow for some kind of movement between the two bones. Bones do not bend, so movement can only occur at the joints.

There are different kinds of moveable joints. The most common are the ball-and-socket joint, the hinge joint, the pivot joint, and the ellipsoid joint. The pivot joint in the neck is responsible for our ability to raise and lower our heads or turn our heads from side to side. The ellipsoid joint in your wrist allows you to wave your hand. The hinge joint of the elbows allows for forward and backward motion. The ball-and-socket joint of the shoulders allows for movement in many directions.

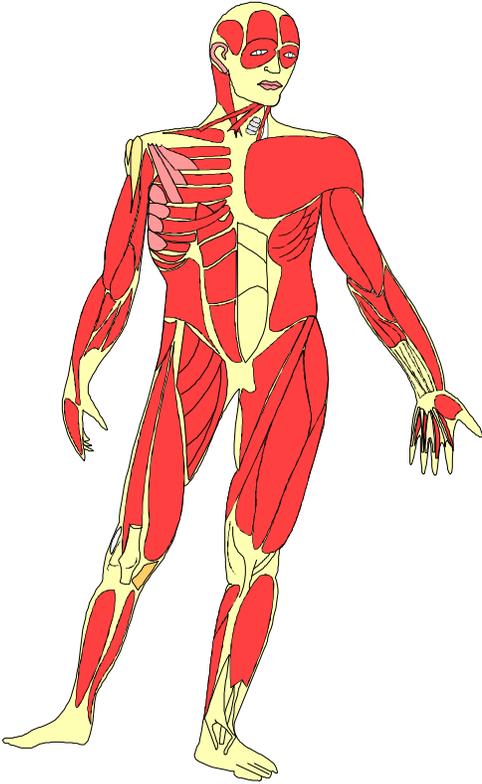
**Directions:** Compare the movement of the hinge and ball-and-socket joints.

1. Move your arm without moving the upper arm at the shoulder. Describe the kind of movement permitted by the hinge joint of your elbow.
2. Now move your arm, concentrating on the variety of movements permitted by the ball-and-socket joint of the shoulder. Write down observations of the kinds of movements possible.
3. How does the movement of the hinge joint of the elbow compare with the movement of the ball-and-socket of the shoulder?
4. The knees and hips are similar to the arms and shoulders. Which represents the hinge joint and which represents the ball-and-socket joint?
5. Why would a ball-and-socket joint at the knees create problems for walking?

## THE SKELETAL AND MUSCULAR SYSTEMS

### The Muscular System

**Directions:** Use the words from the box at the bottom of the page to fill in the blanks in the following paragraphs. Not all the words in the box will be used in the selection.



The human muscular system is made up of more than \_\_\_\_\_ muscles. Muscles are attached to bones by strong connective tissue called \_\_\_\_\_. There are two groups of muscles. Muscles that we can control with conscious thought are called \_\_\_\_\_ muscles. The other group of muscles are automatic. We don't have to think about their action. Muscles that move food through our digestive system or keep our hearts beating are \_\_\_\_\_ muscles.

There are three kinds of muscles found in the human body. Voluntary muscles attached to bones and capable of permitting body movement are called \_\_\_\_\_ muscles. Involuntary muscles found inside organs such as the stomach, intestines, and blood vessels are called \_\_\_\_\_ muscles. The third type of muscle is the hardest working muscle and is an involuntary muscle called \_\_\_\_\_ muscle.

Voluntary muscles receive the signal to contract or relax from the brain. People make the decision to make a movement and the signal is sent from the brain down through the \_\_\_\_\_ and to the appropriate muscles. When the muscle receives the message to contract or relax, it does so completely. This means that there is no such thing as a partial contraction. The strength or weakness of muscle contractions is determined by the number of muscle \_\_\_\_\_ involved.

tendons ligaments voluntary involuntary 200 600 tissue skeletal  
smooth cardiac triceps biceps spinal column bulge contract  
fibers fracture cramp

## THE SKELETAL AND MUSCULAR SYSTEMS

### Pairs of Skeletal Muscles

Muscles work in pairs to move bones and provide the skeletal system with motion. You can locate some of the pairs of muscles in your arms and legs.

**Directions:** Sit in a chair and follow the directions below:

1. Put one hand under the chair and lift up. With your other hand, feel the muscles lifting up in the front and back of the arm.

a. Describe how the two muscles feel. Which one is harder, the one in front or the one in back?

b. Which muscle pulls the arm up?

2. Put your hand on top of the chair and push down. Use your other hand to feel the muscles again.

a. Which muscle, front or back, feels harder?

b. Which muscle is used to straighten your arm?

3. With the help of a friend, test the muscles in your upper leg. Have the friend hold your foot while you try to lift the leg. With one hand under your thigh and the other hand on top of the same thigh, compare the muscles.

a. Which muscle, underside of thigh or top of thigh, is hardest during extension of the leg?

A muscle that bends bones at the joint are called flexors. A muscle that straightens bones at a joint are called extensors.

**QUESTION:** Looking back at the experiments with the arm, which muscle, front or back, is the flexor and which is the extensor?

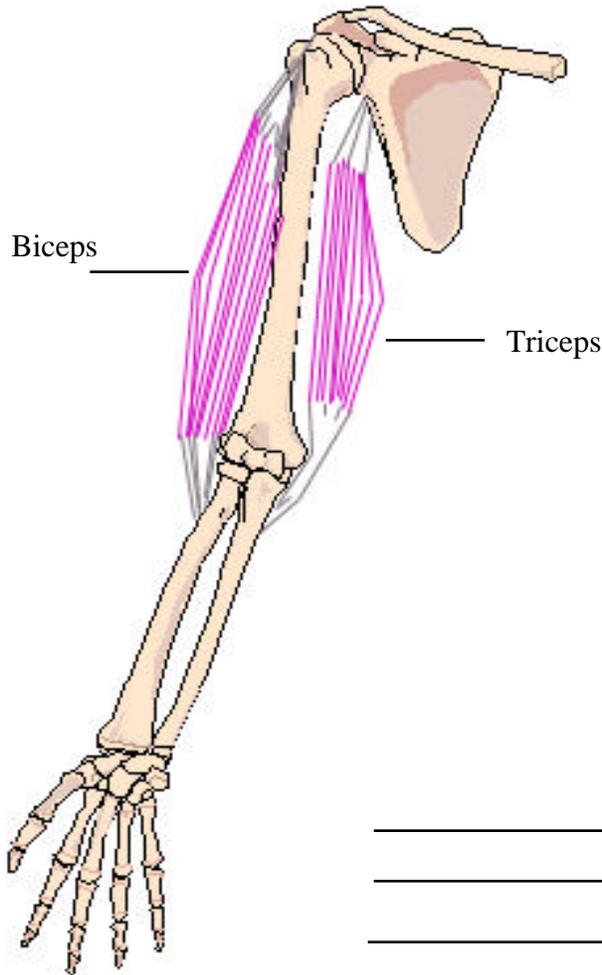
Flexor - \_\_\_\_\_

Extensor - \_\_\_\_\_

**THE SKELETAL AND MUSCULAR SYSTEMS**  
**The Way Muscles Work**

Muscles work in pairs to move bones and provide the skeletal system with motion. A good example of the way this works is found in the arm. When we bend our arms up and down, the tricep and bicep muscles are working together to perform the movement.

**Directions:** Describe how the biceps and triceps work together to straighten and bend the arm.



Bending Arm

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Straightening Arm

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**THE SKELETAL AND MUSCULAR SYSTEMS**  
**Quiz**

**Directions:** Use the space provided to answer the following questions. Use the back of this sheet if necessary.

1. What are the five functions of the skeletal system?
  
2. Approximately how many bones are there in an adult body?  
Ligaments and tendons are connective tissues that work with bones. What job does each perform?
  
3. What is cartilage? Where in the human body can we find examples of cartilage?
  
4. Cartilage in the knee and elbow performs two very important jobs. What are those jobs?
  
5. Joints are very important to the skeletal system. Describe how the following joints listed here move, and give an example of the joint in the skeletal system.
  - hinge joint -
  - ball-and-socket joint -
  - pivot joint -
  - fixed joint -
  
6. Describe how voluntary and involuntary muscles are different from each other.
  
7. What are the three kinds of muscles found in the human being?
  
8. Muscles work in pairs. Describe how the biceps and triceps work together to bend and straighten your arm.