

## Muscular System Worksheet

1. Write a definition for each of the following terms.

(a) tendon

(b) ligament

(c) skeletal muscle

(d) cardiac muscle

(e) smooth muscle

2. Fill in the blanks in the following sentences.

(a) Your muscle tissue turns chemical potential energy into mechanical energy by \_\_\_\_\_ and \_\_\_\_\_.

(b) You have \_\_\_\_\_ skeletal muscles. They work by \_\_\_\_\_ bones in different directions.

(c) Each muscle has its own \_\_\_\_\_ to stimulate contraction and its own \_\_\_\_\_ and vein to keep it well fed.

(d) A skeletal muscle is constructed like a sturdy piece of \_\_\_\_\_.

(e) Muscles always \_\_\_\_\_. They never push.

- (f) Whatever one muscle \_\_\_\_\_, another muscle can \_\_\_\_\_.
- (g) Your brain causes you muscles to increase their force by increasing the \_\_\_\_\_ with which you motor neurons are firing. The faster they fire, the \_\_\_\_\_ each twitch gets.
- (h) 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.
- (i) When the muscle receives a message to contract or relax, it does so \_\_\_\_\_. This means that there is no such thing as a partial contraction.
- (j) The strength or weakness of muscle contractions is determined by the number of muscle \_\_\_\_\_ involved.

**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 - \_\_\_\_\_

Name \_\_\_\_\_

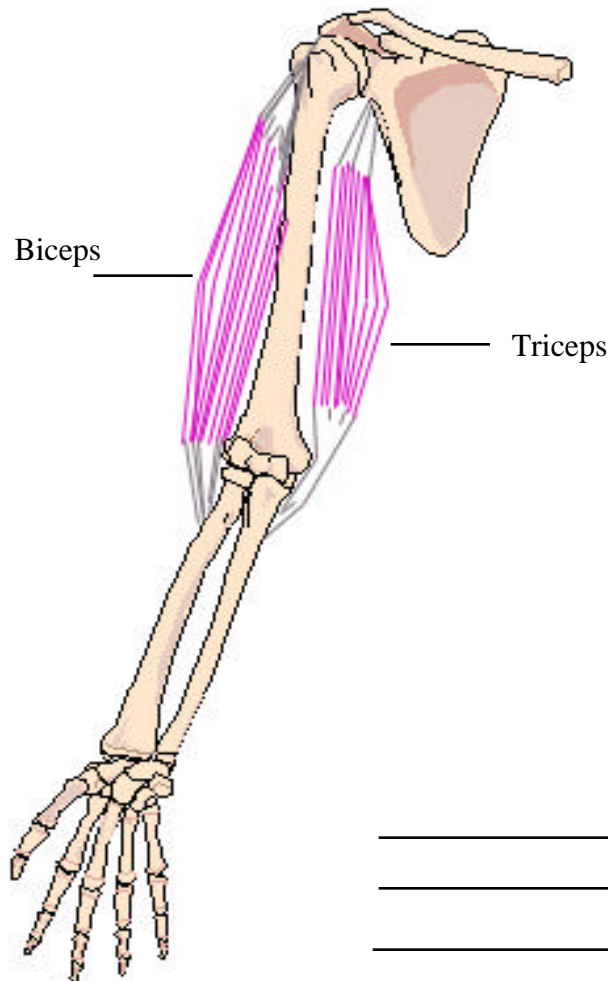
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## THE SKELETAL AND MUSCULAR SYSTEMS

### 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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