Muscular System Worksheet

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

   (a) tendon

   connective tissue that attaches muscles to bones

   (b) ligament

   connective tissue that connects bones to each other

   (c) skeletal muscle

   voluntary muscles attached to bones capable of providing motion

   (d) cardiac muscle

   the hardest working muscle; the heart is made of cardiac muscles

   (e) smooth muscle

   involuntary muscles found inside most organs such as the stomach, intestines, and blood vessels

2. Fill in the blanks in the following sentences.

   (a) Your muscle tissue turns chemical potential energy into mechanical energy by __*contracting*____ and ___*relaxing*_____.

   (b) You have ____*640*_____ skeletal muscles. They work by _____*pulling*____ bones in different directions.

   (c) Each muscle has its own __*nerve*_____ to stimulate contraction and its own ___*artery*_____ and vein to keep it well fed.

   (d) A skeletal muscle is constructed like a sturdy piece of ___*rope*_____.

   (e) Muscles always ___*pull*_____. They never push.

(f) Whatever one muscle ___*does*_____, another muscle can ___*undo*_____.

(g) Your brain causes you muscles to increase their force by increasing the __*frequency*__ with which you motor neurons are firing. The faster they fire, the __*stronger*_____ 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 ___*spinal column*_____ and to the appropriate muscles.

(i) When the muscle receives a message to contract or relax, it does so _*completely*____. 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 ___*fibers*_____ involved.

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6, Pairs of Skeletal Muscles

1. a. The muscle in front (biceps) is harder.
   b. The muscle in front.
2. a. The muscle in back (triceps) is harder.
   b. Back muscle.
3. a. The top of thigh seems to be hardest during extension of the leg.

Question: flexor is front or biceps, extensor is the back or triceps.

7, The Way Muscles Work

Bending Arm: Answers will vary but might include: To bend the arm, the biceps will contract and the triceps will relax. When the biceps contract, they get smaller and pull on the arm bones to move around the hinge joint of the elbow.

Straightening Arm: Answers will vary but might include: To straighten the arm, the biceps relax and triceps contract.