

# MUSCULAR SYSTEM

## Levels of Organization: "Support and Movement" – Muscular System

### Topic: Introduction:

1. The cell membrane of a muscle cell (fiber) is called the \_\_\_\_\_.
2. A skeletal muscle is composed of a variety of tissues including layers of connective tissue. \_\_\_\_\_ covers the surface of the muscle, \_\_\_\_\_ lies beneath the fascia, and \_\_\_\_\_ extends into the structure of the muscle, where it separates muscle cells into fascicles. \_\_\_\_\_ separates individual muscle fibers.
3. The immovable end of the muscle is called its \_\_\_\_\_ and the moveable end is its \_\_\_\_\_.

### Topic: Muscle Characteristics:

4. Match the four characteristics of muscle with their function:
  - a. contractility \_\_\_\_\_ can respond to stimulation (by nerves and hormones)
  - b. excitability \_\_\_\_\_ can return to original length when stretched
  - c. extensibility \_\_\_\_\_ can shorten in length
  - d. elasticity \_\_\_\_\_ can stretch beyond resting length

### Topic: Muscle Structure:

5. Put these structures in order from the smallest (#1) to the largest (#5) in size:

\_\_\_\_\_ Muscle cell (fiber)  
\_\_\_\_\_ Muscle  
\_\_\_\_\_ Fascicle  
\_\_\_\_\_ Filament  
\_\_\_\_\_ Myofibril

6. What gives striated muscle its striped appearance?
7. The basic functional unit of a muscle is the \_\_\_\_\_, a section of a myofibril.
8. What is a sarcomere composed of?
9. Thin filaments are called \_\_\_\_\_.  
Thick filaments are called \_\_\_\_\_.
10. What does a T-tubule do?

**Topic: Neuromuscular Junction:**

11. What two things form a neuromuscular junction?

12. When a nerve impulse reaches the end of a motor neuron fiber, synaptic vesicles release a \_\_\_\_\_ into the gap (synaptic cleft).

13. What does a motor unit consist of?

14. In the space below, draw a neuromuscular junction and label with the following structures: synaptic knob, synaptic cleft, synaptic vesicles, sarcolemma, ACh receptors, and transverse tubules.