

NAME \_\_\_\_\_ PERIOD \_\_\_\_\_

### MUSCLE LAB – A & P

#### ARM MUSCLES

Roll up your sleeve and have a classmate fasten a strip of paper firmly around your upper arm over the biceps muscle while your arm is hanging loose by your side.

Flex your arm strongly at the-elbow and note the effect on the paper.

1. What happened to the paper around your arm when you flexed?
  
  
  
  
  
  
  
  
  
  
2. Describe what is happening to the muscles of your biceps and triceps. Identify the agonist and protagonist.
  
  
  
  
  
  
  
  
  
  
3. Explain the change in muscle diameter in terms of the sliding filament model.

#### LEG MUSCLES

Press the toes of your right foot firmly on the floor and raise yourself on that foot. At the same time feel the calf of your right leg.

1. What happens to the muscles in your leg when you lift up on your toes?
  
  
  
  
  
  
  
  
  
  
2. Draw a sketch of what your bones, muscles, and tendons look like at rest as well as how they look when you stand on your toes.

**LEG MUSCLES cont.**

Flex and extend the foot sharply. Feel the tendon and the calf muscle.

1. Describe the condition of the tendon in dorsiflexion vs. plantarflexion.
  
  
  
  
  
  
  
  
  
  
2. Describe the condition of the calf muscle in dorsiflexion vs. plantarflexion.
  
  
  
  
  
  
  
  
  
  
3. Explain the difference/relationship between fascia and tendons

**MUSCLE CONTRACTION & TEMPERATURE**

Write your name 5 times. Submerge you hand in ice water for as long as you can (3 min. minimum & 6 min. maximum). Now write your name again 5 times. Also try buttoning & unbuttoning a shirt, etc. Note your recovery time (how long it takes your hands to warm up again).

Before Ice

After Ice


Recovery time - \_\_\_\_\_ minutes. Discuss the effects of temperature on muscle contractions.

## ISOTONIC & ISOMETRIC CONTRACTIONS

Hold a heavy object on the palm of your hand with your arms extended, and then lift a heavy object by bending your elbow. Observe and feel the muscles in your arms.

1. Define isotonic and isometric contractions and identify the examples practiced.
2. Which type of muscle fibers are primarily needed for isotonic contractions and isometric contractions?

## MUSCLE FATIGUE

Rest one arm on your desk, elbow to hand touching the desk surface, with your palms facing up. Quickly clasp and unclasp your hands. Each time the fingers must touch the palm and then the desk. Do as many as you can for 90 seconds then rest for 30 seconds. Repeat this 3 times in a row, while your partner helps you watch the time and/or count repetitions. Now switch hands and repeat the process.

Are you right-handed or left-handed? \_\_\_\_\_

Time Period	Right Hand	Left Hand
1 <sup>st</sup> 90 seconds		
2 <sup>nd</sup> 90 seconds		
3 <sup>rd</sup> 90 seconds		
Total Count		

1. Compare your data with at least five of your classmates. How does your count compare in terms of speed and endurance?
2. Compare the speed and endurance of your own dominant and non-dominant hands.