

Name \_\_\_\_\_ Hour \_\_\_\_\_

### Muscular System

There are more than \_\_\_\_\_ muscles in the Human Body!!!

Muscles are:

Needed for \_\_\_\_\_

Needed for \_\_\_\_\_

Needed for \_\_\_\_\_

Needed for \_\_\_\_\_

Needed for \_\_\_\_\_

### Cardiac Muscle

➤ The muscle of the heart.

➤ Involuntary ( \_\_\_\_\_ )

➤ Works \_\_\_\_\_

➤ Strongest \_\_\_\_\_ Draw the cardiac

➤ Only \_\_\_\_\_ muscle on high power.

➤ Some \_\_\_\_\_

### A.D.A.M. Video clip: Exercise

➤ Weightlifting, pushups, and sprinting are forms of

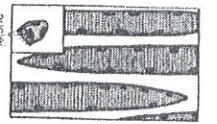
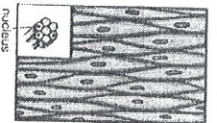
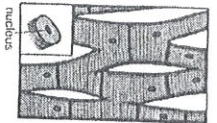
anaerobic/aerobic exercise? (circle one)

➤ Muscles fatigue (get tired) fastest with

anaerobic/aerobic exercise? (circle one)

### 3 Types of Muscle

Identify the three types of muscle from the diagram:



Muscle \_\_\_\_\_

Muscle \_\_\_\_\_

Muscle \_\_\_\_\_

### Skeletal Muscle

➤ Move your bones.

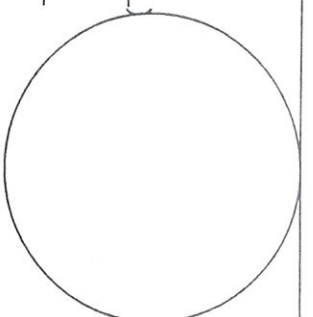
➤ Voluntary ( \_\_\_\_\_ )

➤ Over \_\_\_\_\_

➤ Long \_\_\_\_\_

➤ Stripes \_\_\_\_\_

Draw the skeletal muscle on high power. Label striations.



### Smooth Muscle

➤ The muscle of \_\_\_\_\_

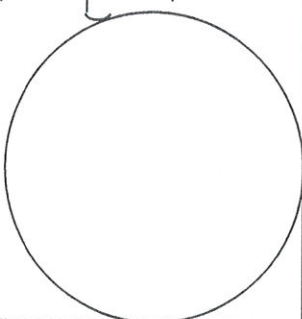
➤ Involuntary ( \_\_\_\_\_ )

➤ Contract \_\_\_\_\_

➤ Can remain \_\_\_\_\_

➤ Usually \_\_\_\_\_

➤ No stripes (striations)



### Anatomy of a Muscle

Label:

Bone

Tendon

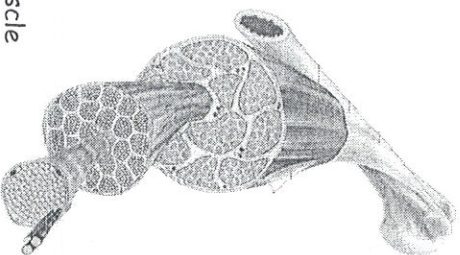
Myofibril

Cell Nuclei

Fascicle

Body of Muscle

Muscle Fiber



Which of these (above) is the muscle cell?

### A.D.A.M. Video clip: Skeletal Muscle

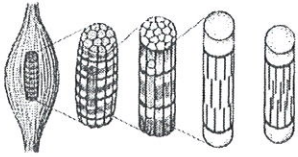
➤ Which is larger, a muscle fascicle or a muscle fiber?

➤ Which is larger, a muscle fiber or a myofibril?

### A.D.A.M. Video clip: Exercise fill in the chart

Type of Muscle	Where found	Voluntary / Involuntary
cardiac	Walls of body organs (stomach and intestines)	
	Attached to bones	

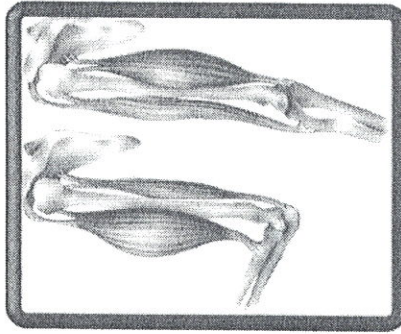
### How a Muscle Works



- ✦ A skeletal muscle works by \_\_\_\_\_.
- ✦ The muscle can shorten as much as \_\_\_\_\_.
- ✦ Each muscle cell is made up of smaller \_\_\_\_\_.
- ✦ The \_\_\_\_\_ are in contact with a nerve ending.
- ✦ The nerve releases a chemical called a \_\_\_\_\_.
- ✦ The \_\_\_\_\_ stimulates the entire muscle to contract.

Label the parts of the diagram.

### Opposites Contract ... and relax



- ✦ Muscles work in \_\_\_\_\_.
- ✦ While one muscle in the pair contracts the other must \_\_\_\_\_.

Label all parts of the diagram

### Muscle Fatigue ... Too Tired to Sit

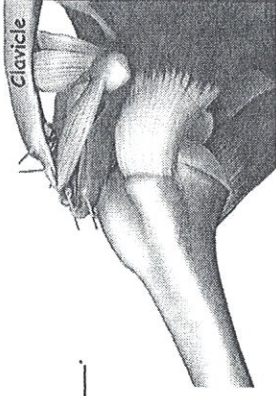
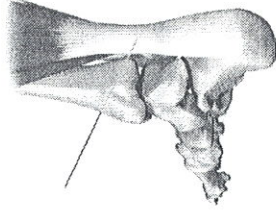
How long did you sit before your legs started to burn like crazy?  
\_\_\_\_\_ minutes \_\_\_\_\_ seconds

How did it feel to try to walk right after sitting against the wall?

The funny feeling in your legs is called *muscle fatigue*. Fatigue is caused by a buildup of \_\_\_\_\_ in the muscle.

### Muscle to Tendon to Bone

Tendons attach \_\_\_\_\_ to \_\_\_\_\_.



Label the two diagrams:  
Ligament, Tendons, Bone

### Muscle Fatigue ... Weight Lifting

How long did you hold the book before fatigue got the better of you?  
\_\_\_\_\_ minutes \_\_\_\_\_ seconds

Which arm felt the fatigue the most? (straight out or by your side)

Which muscles experienced the most fatigue? (circle one)  
a) biceps b) triceps c) deltoids d) pectoralis major

Hint: you may want to check the stations with the labeled muscles

### Muscle Fatigue ... To Beat or Not to Beat

How is your heart (cardiac) muscle different from your arm (skeletal) muscle? (just compare how tired your arm got doing the work of the heart)

Does cardiac muscle experience fatigue?

Does skeletal muscle experience fatigue?

So, about how long did you "live", anyway?? \_\_\_\_\_ minutes



### Muscle Fatigue ... Get a Grip

What happened to the paper clip even when you kept your hand steady?

What caused this? Hint: read the introduction

### Muscle Fatigue ... Clothespin Calisthenics

How many times did you squeeze the clothespin the first one minute? \_\_\_\_\_

How many times did you squeeze the clothespin the second one minute? \_\_\_\_\_

The soreness in your arm and arm is called *muscle fatigue*. Fatigue is caused by a buildup of \_\_\_\_\_ in your muscles. Hint: read the introduction

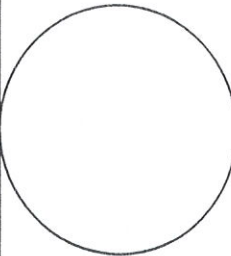
Why did you feel fatigue in your forearm rather than your fingers?

### Making a Temporary Muscle Slide (from Dead Meat)

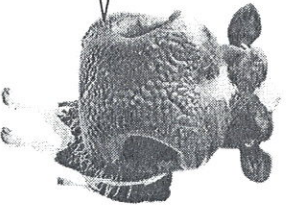
What are striations?

Did you see striations in your slide?

Draw your slide here (high power). Label striations.



Have your teacher check your slide and sign here.



Teacher Signature \_\_\_\_\_

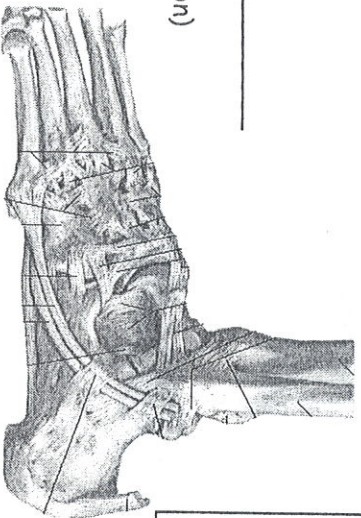
Describe the feeling of having your muscles artificially stimulated?



### Ligaments hold bones together

How many ligaments are shown in the labeled diagram? \_\_\_\_\_

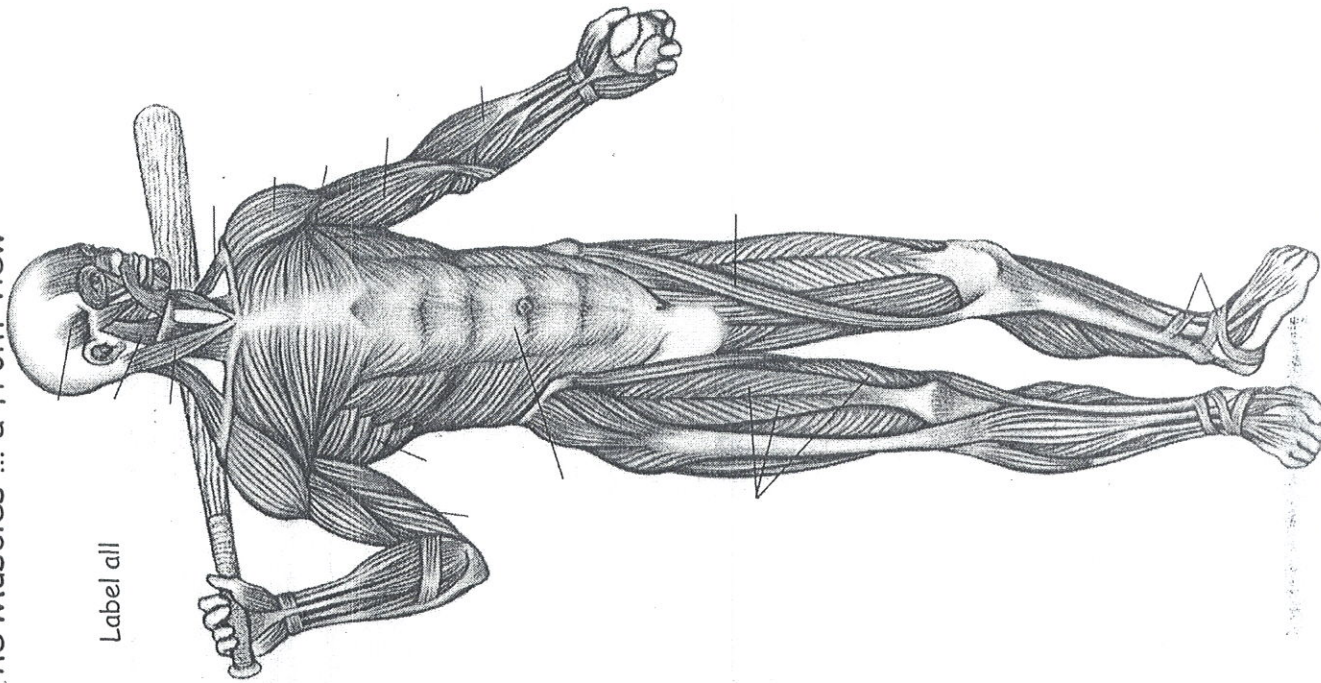
Hint: you will need to count the *ligaments* in the diagram (not bone or tendon)



In this diagram, label these ligaments:

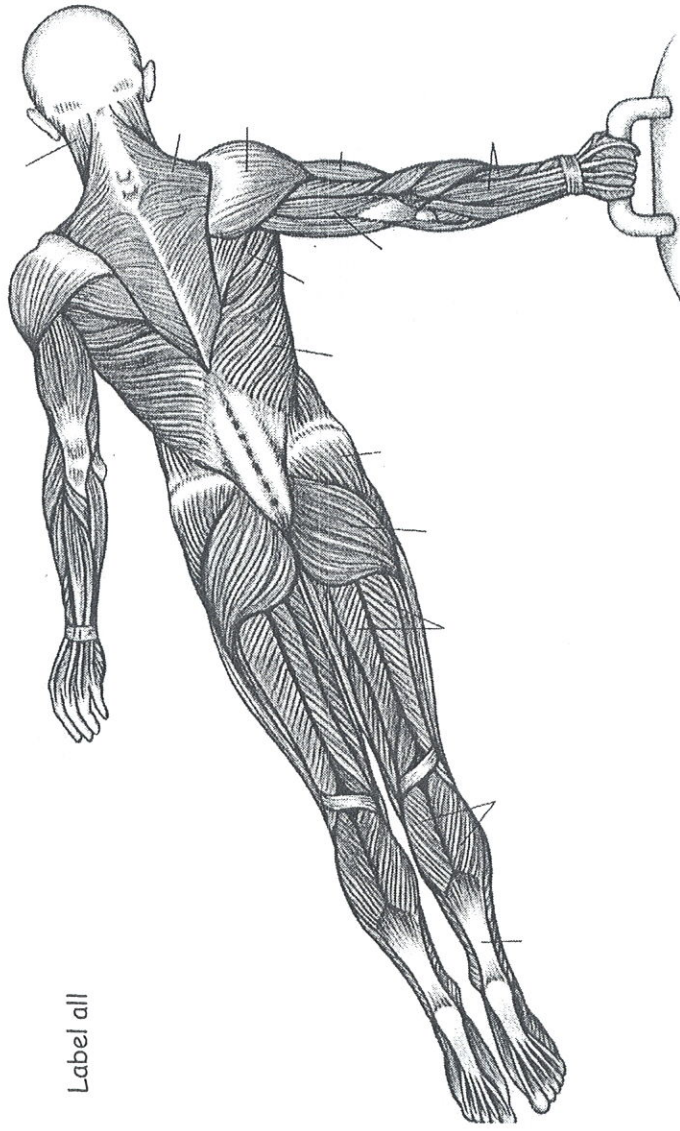
- Anterior tibiofibular ligament
- Dorsal talonavicular ligament
- Dorsal tarsometatarsal ligament

### The Muscles ... a front view

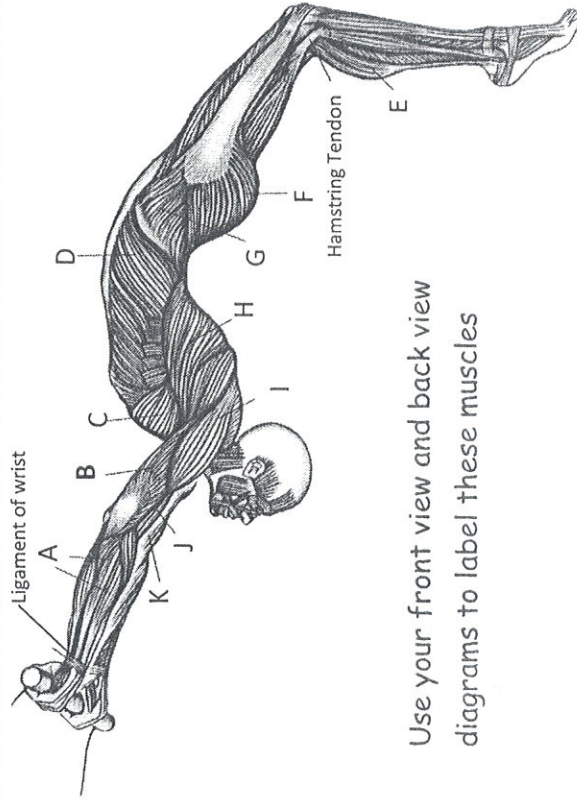


Label all

### The Muscles ... a back view



Label all



Ligament of wrist

Hamstring Tendon

Label: place the letter next to the name.

- Gluteus maximus
- Latissimus dorsi
- Pectoralis major
- Gastrocnemius
- Muscles to fingers
- Triceps
- Brachioradialis
- Deltoid
- Biceps
- Exterior oblique
- Gluteus medius

Use your front view and back view diagrams to label these muscles