Part 3 Muscular System

Name:

Part 3 Lesson 1 Muscular System

How many muscles are in the human body? _____

_____ vessels are also woven into the muscles to… bring fresh blood with _____ and _____ and to remove _____.

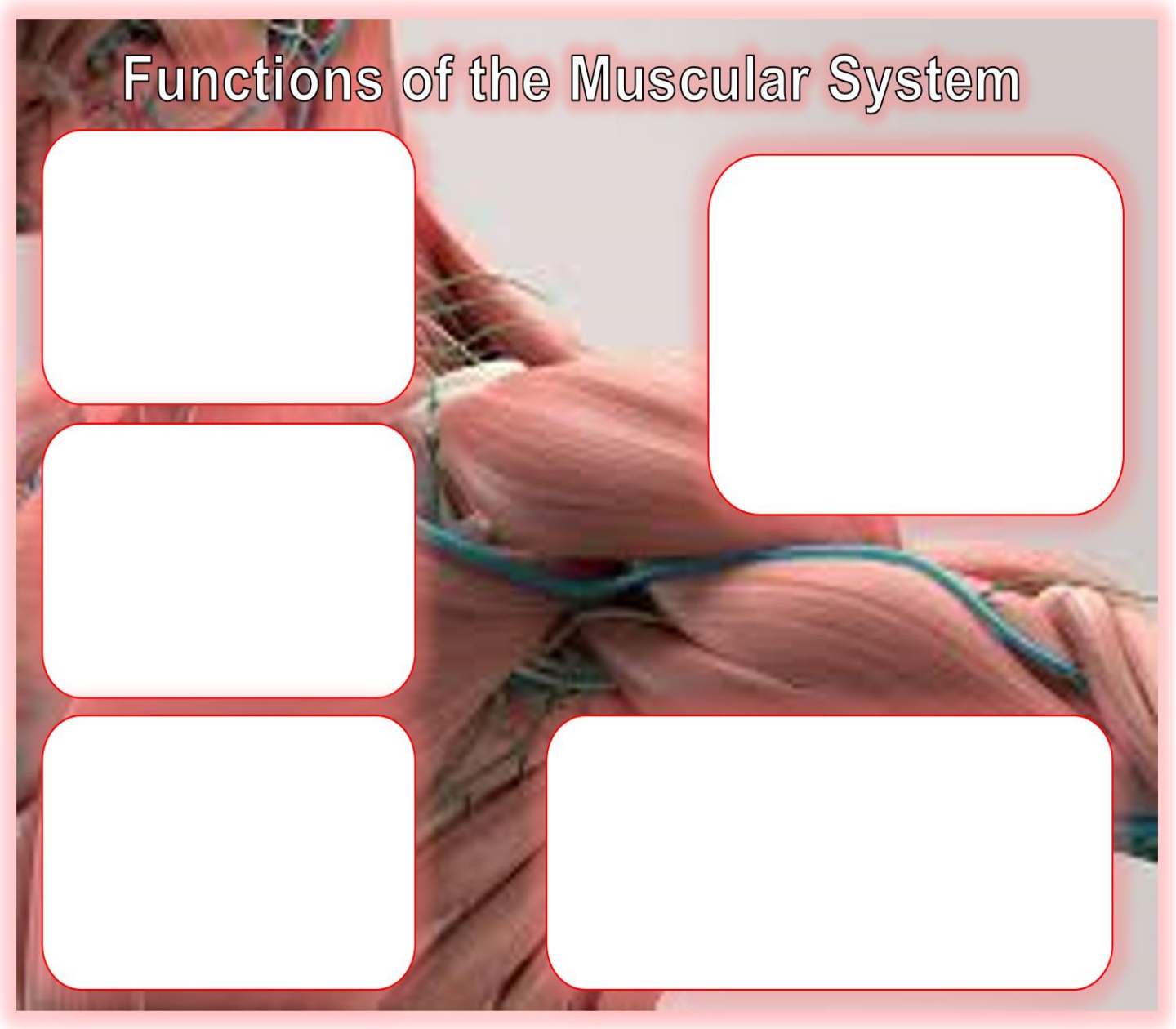
Upon stimulation by an action potential from your _____ and _____, skeletal muscles perform a coordinated _____ by _____.

The human body contains 3 types of muscular tissue.

- _____Muscle
- _____ Muscle
- _____Muscle

Functions of the Muscular System

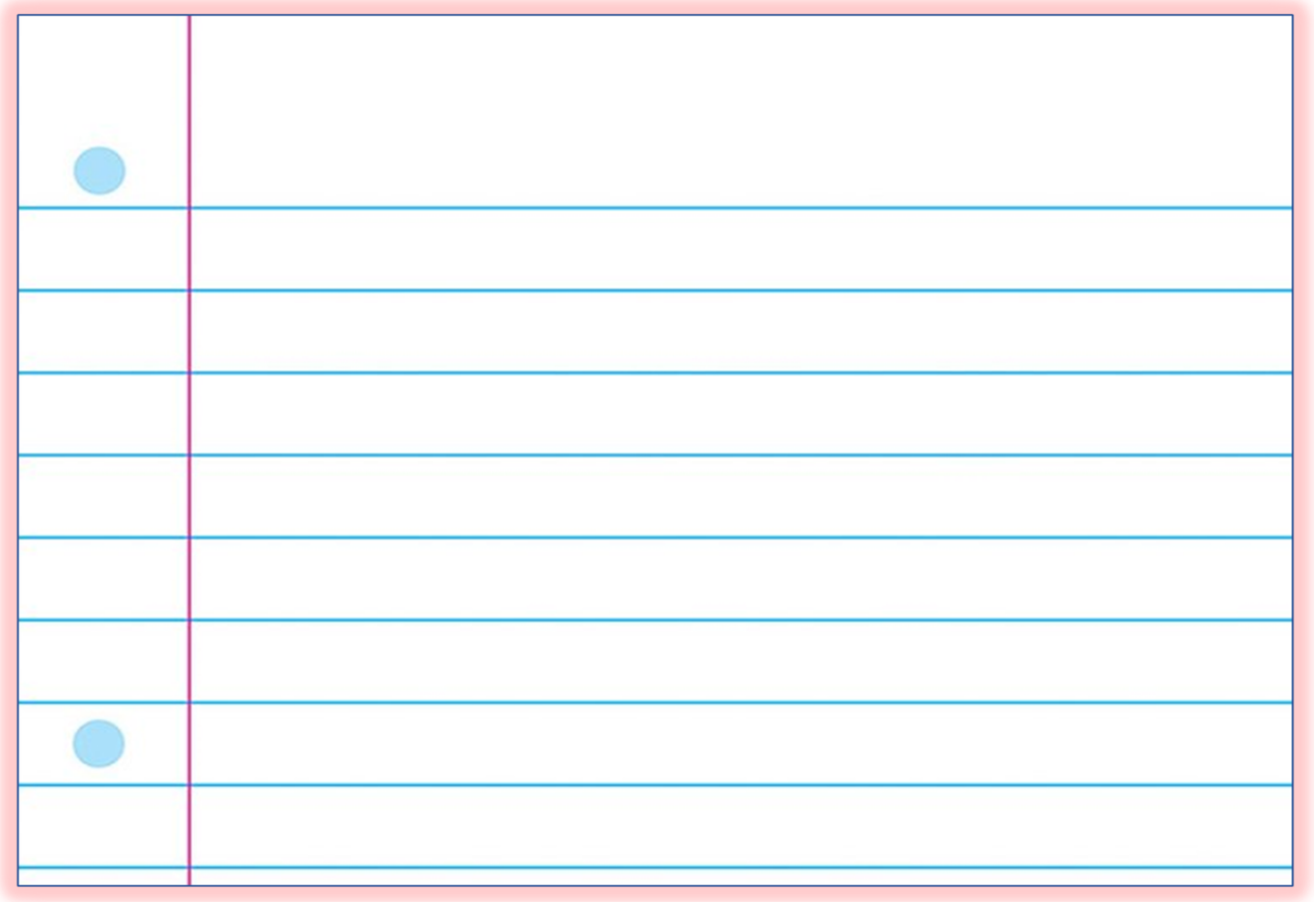
- _____: Muscles are responsible for movements of human body parts.
  - They provide the force by using energy to contract. Muscles are the motors of our body, they turn _____ energy of food into _____ work.
- Stability and _____: Skeletal muscles stabilize human skeleton. Some joints of human body are weak and they require the support.
- _____Production: Muscles produce a lot of heat. Heat produced by the muscles is very important in _____ climates.
- _____: Cardiac muscles provide the force for circulation of blood throughout human body. This keeps blood in _____ and nutrients available to every tissue of human body.
- AID IN _____: Smooth muscles like stomach and the intestines help the digestive system in the process of digestion.
  - They help _____ food through the system.



Muscle can also be voluntary and involuntary.

- _____ muscles you can control.
- _____ muscles are ones that you can't control.

◊ Describe the difference between voluntary and involuntary muscles? ◊ You must use a few specific muscles as examples.



Part 3 Lesson 2 Muscles of the Human Body

A _____ is the basic contractile unit of muscle fiber.

Each sarcomere is composed of two main protein filaments—_____ and _____—which are the active structures responsible for muscular contraction.

Muscle Fiber: Long fibers that run _____ to each other and are held together by connective tissue.

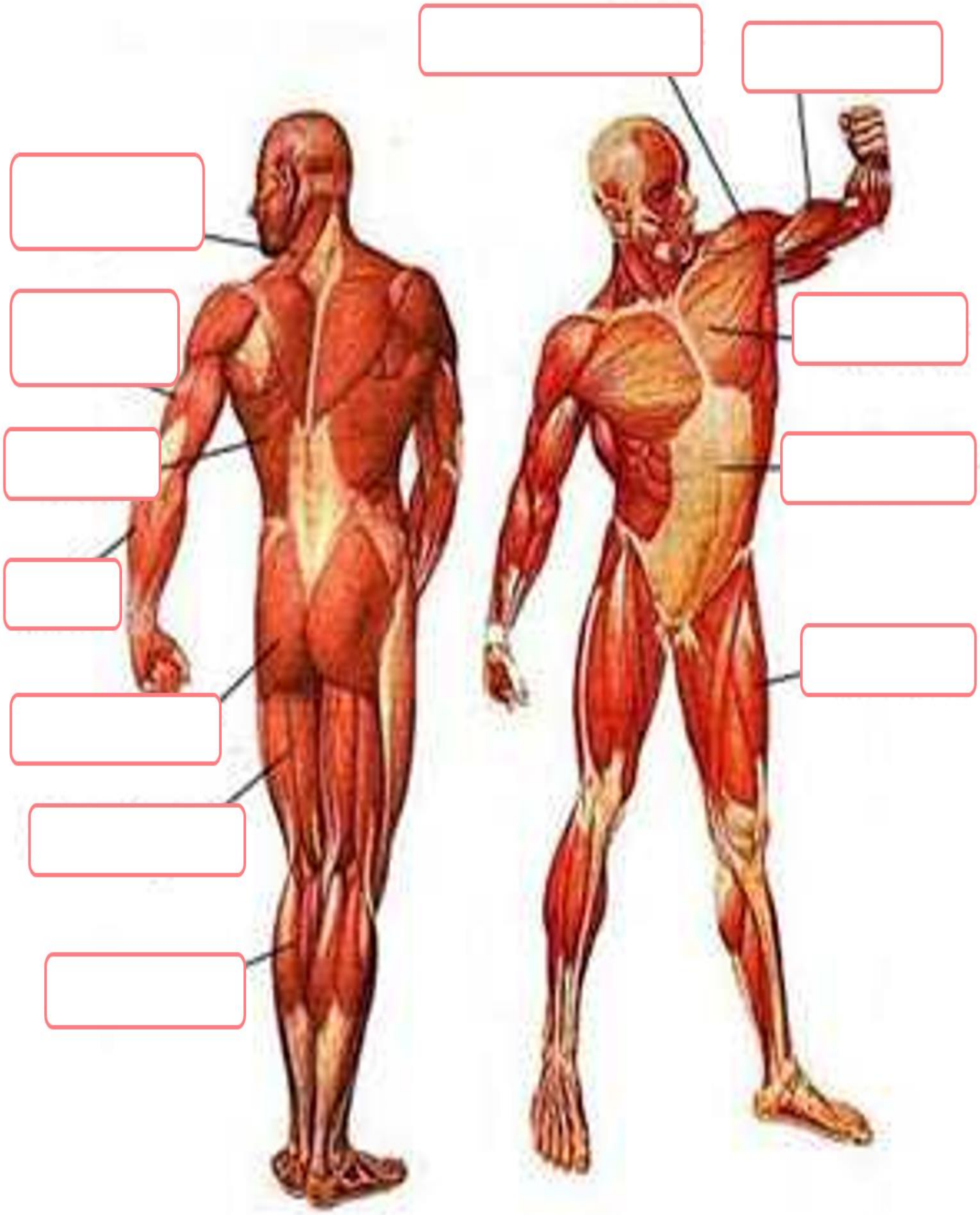
They _____and _____.

Individual muscles can act only to _____, and not to lengthen the distance between _____ attachment points. (Tendons)

They can only _____, they can't push.

_____ muscles work by sending a signal in a wave over several cells

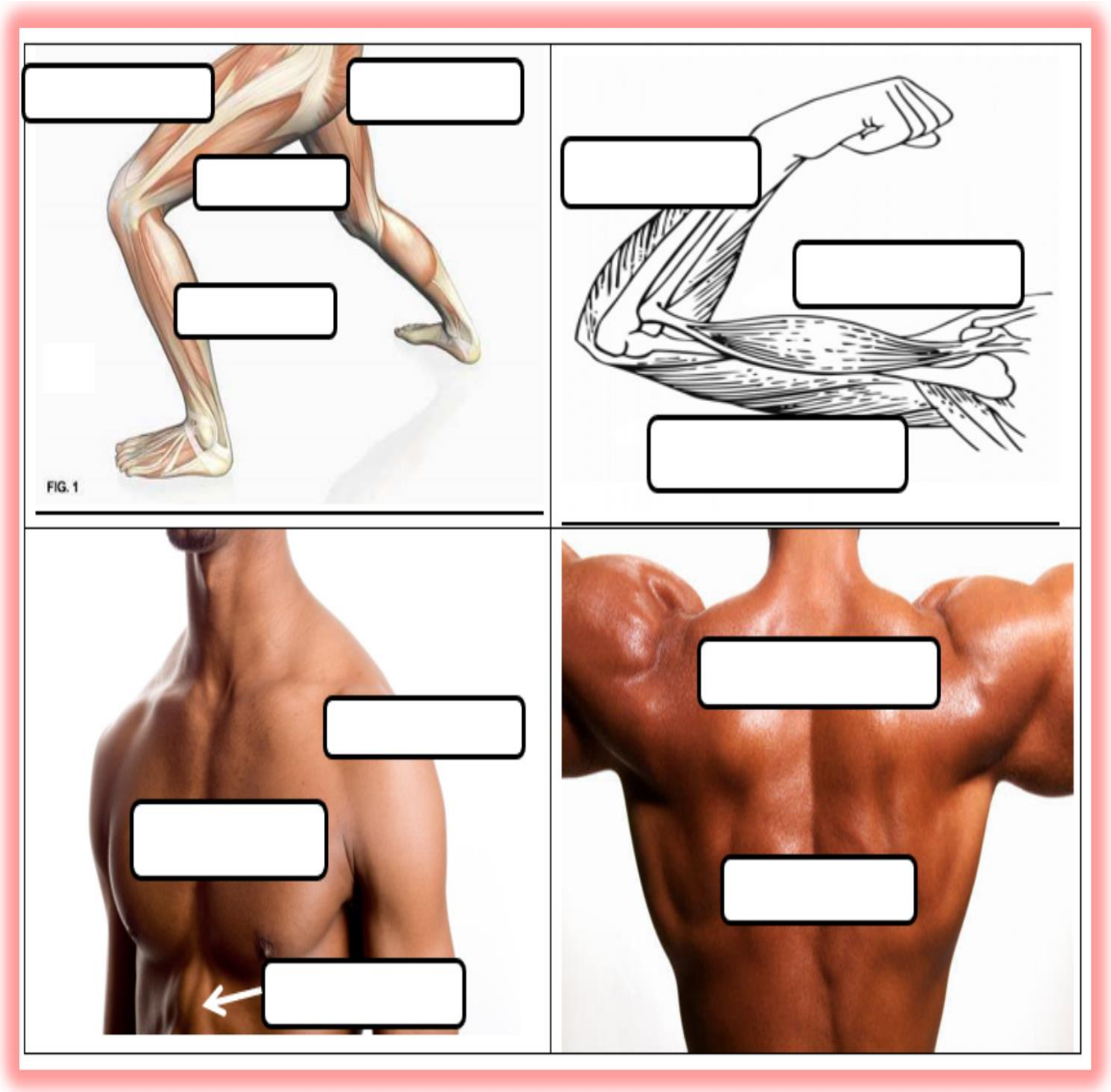
This wavelike action helps in moving food through the intestine.



Quiz Wiz! Name that muscle on Stallone.

1)	2)	3)
4)	5)	6)
7)	8)	9)
10)	*11)	

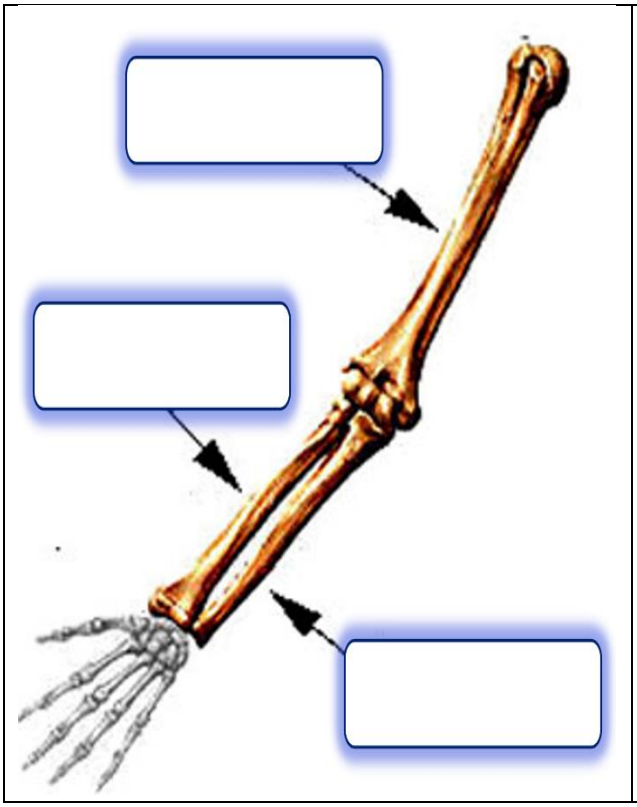
◊ Please label some of the muscles below?

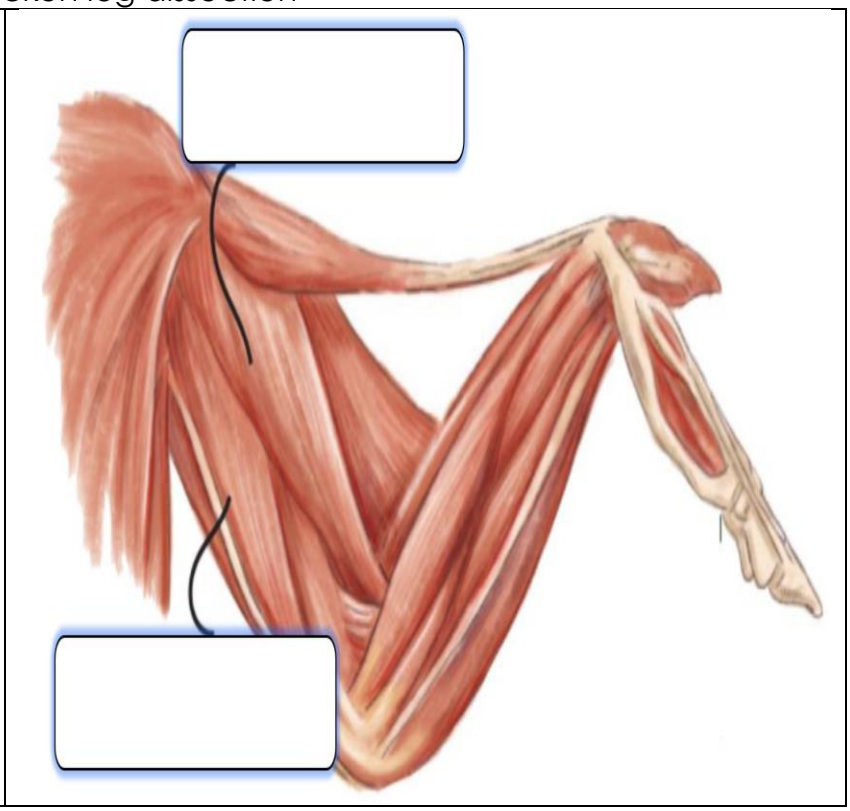


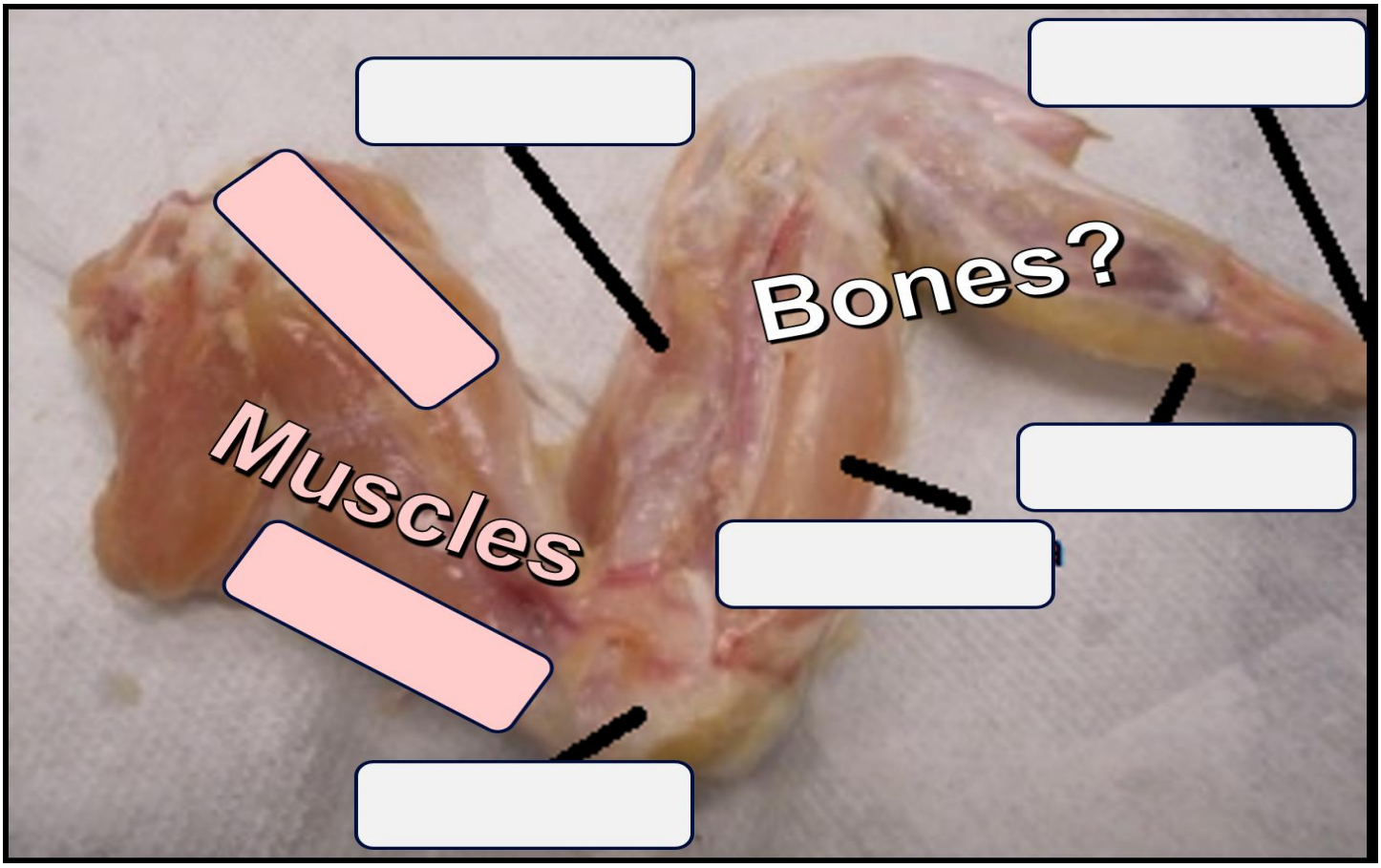
Part 3 Lesson 3 Chicken Leg Dissection

Step 1: 1) Please put on eyewear and gloves. 2) Place chicken leg on dissection tray. 3) Sketch the chicken leg in your journal	Step 2 1) Look at the skin tissue and record its properties in the results table. -Make at least one observation of the skin. 2) Look at the hip bone / move it. ---What type of joint is it? 3) Gently move the knee joint? -What type of joint is it? Can it move sideways?	Step 3 1) Skillfully pull / cut to remove the skin using your dissection tools. -Is fat tissue present? Describe it in your journal 2) Look for fascia (shiny lining over muscles) 3) Examine the Muscle Tissue and record your finding in the results table.
Step 4 1) Separate the muscles into bundles using your fingers until you have a small pile of muscle bundles. 2) Look for tendons at the end of the muscle bundles or still attached to the bone. – Record results in data table.	Step 5 1) Look for arteries (blood vessels), and thin nerves around the muscle and tendons. 2) Carefully cut the tendons away near the joint and look for ligaments. -Record findings about the ligament in the data table. 3) Identify the Femur, Tibia, and Fibula to your teachers.	Step 6 1) Skillfully remove <u>excess</u> material to expose the joint A (knee). -Don't cut the ligaments / cartilage 2) Move this joint around and observe the "Hinge" -Make a sketch of this joint in your journal 3) Record properties of cartilage (Tissue that lets joints slide easily and absorbs shock) between joints on your data table.
Step 7 1) Skillfully remove <u>excess</u> material to expose the joint B (Hip). -Don't cut the ligaments / cartilage 2) Move this joint around and observe the "Ball and Socket" -Make a sketch of this joint in your journal.	Step 8 1) Skillfully cut the ligaments around each joint and remove the bones. -Complete the bone section of the data table. 2) Draw a sketch of the ends of each bone and how they fit together. 3) Using your hands, break the Tibia in half and make a sketch of the bone marrow. -Red =Place where blood cells are made. -Yellow = Fats are made.	Step 9 1) Dispose of all parts of chicken leg to disposal area (trash bag). 2) Carefully bring all tools to clean up area and clean properly. 3) Disinfect area properly. 4) Remove eyewear and gloves with teacher approval and dispose of gloves properly. –Watch for contamination!

Name the bones of the arm. Part of Chicken leg dissection







Fascia is the band of thin, fibrous connective tissue that wraps around and supports every structure in your body.

Chicken Leg Dissection

Name:_____

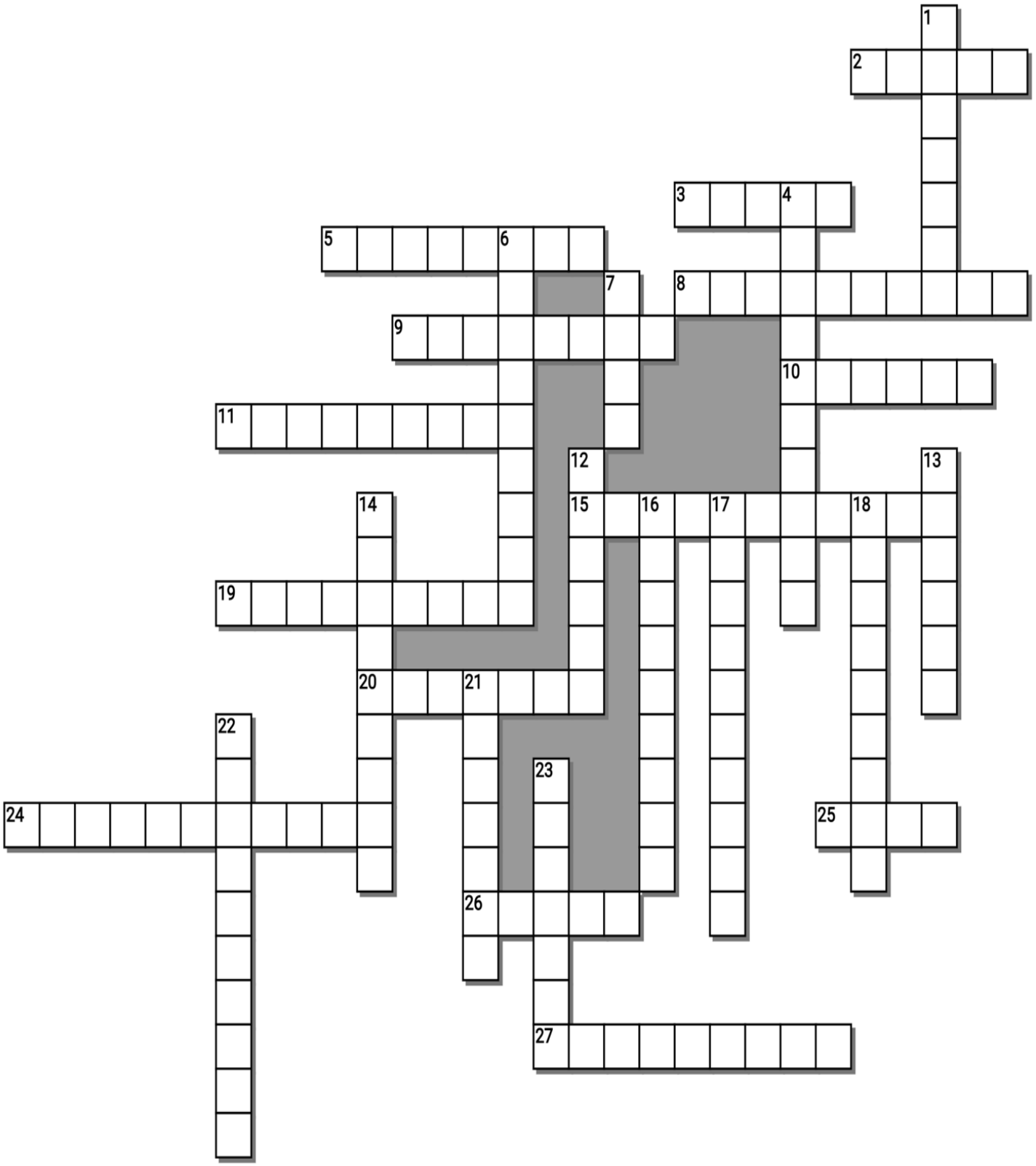
Tissue	Color	Stretch (Y/N)	Hard (Y/N)	Fibers (Y/N)	Thick (Y/N)
Skin					
Muscle					
Tendon					
Ligament					
Cartilage					
Bone					

Across

2. _____ vessels are also woven into the muscles to... bring fresh blood with sugar and oxygen and to remove waste.
3. Upon stimulation by an action potential from your _____ and nerves, skeletal muscles perform a coordinated contraction by shortening.
5. The human body contains 3 types of muscular tissue. - _____Muscle –Smooth Muscle –Cardiac Muscle
8. _____ muscle, any of the muscles that connect the front walls of the chest with the bones of the upper arm and shoulder
9. Muscle Fiber: Long fibers that run _____ to each other and are held together by connective tissue. They contract and relax.
10. The human body contains 3 types of muscular tissue. – Skeletal Muscle – _____ Muscle – Cardiac Muscle
11. Skeletal muscles _____ human skeleton. Some joints of human body are weak and they require the support.
15. Muscle can also be voluntary and _____.
19. Muscles are responsible for _____ of human body parts
20. The _____ brachii is a large, thick muscle on the dorsal part of the upper arm. It often appears as the shape of a horseshoe on the posterior aspect of the arm. The main function of the triceps is the extension of the elbow joint.
24. Cardiac muscles provide the force for _____ of blood throughout human body.
25. The _____ is made up of two superficial muscles: the upper gastrocnemius; and the lower soleus. These are located at the back of your lower leg and join together to become your achilles tendon and attach onto your heel.
26. Each sarcomere is composed of two main protein filaments—_____ and myosin—which are the active structures responsible for muscular contraction.
27. A _____ is the basic contractile unit of muscle fiber.

Down

1. Involuntary muscles are ones that you can't _____.
4. Smooth muscles like the stomach and the _____ help the digestive system in the process of digestion.
6. The _____ muscle is a postural and active movement muscle, used to tilt and turn the head and neck, shrug, steady the shoulders, and twist the arms.
7. Muscles produce a lot of _____. Heat produced by the muscles is very important in cold climates.
12. The _____ muscle is located at the front of your upper arm. The muscle has two tendons that attach it to the bones of the scapula bone of the shoulder and one tendon that attaches to the radius bone at the elbow.
13. Each sarcomere is composed of two main protein filaments—actin and _____ which are the active structures responsible for muscular contraction.
14. Three muscles run down the back of your leg, from your thigh to your knee — the biceps femoris, semitendinosus, and semimembranosus — and help you bend your knee and extend your hip. As a group, they are known as the _____..
16. Muscle can also be _____ and involuntary.
17. The _____ dorsi muscle is a large, triangularly shaped back muscle that helps you do things like pull-ups, swimming and even breathing. It functions to stabilize your back while extending your shoulders.
18. The _____ muscles are located between the ribs and the pelvis on the front of the body. The abdominal muscles support the trunk, allow movement and hold organs in place by regulating internal abdominal pressure.
21. The human body contains 3 types of muscular tissue. –Skeletal Muscle –Smooth Muscle –_____ Muscle
22. The large muscle at the front of the thigh, which is divided into four distinct portions and acts to extend the leg.
23. The _____ maximus is the most superficial as well as largest of the three muscles and makes up most of the shape and form of the buttock and hip area.



----------Teacher can remove this word bank to make puzzle more challenging----------

Possible Answers

INVOLUNTARY, ACTIN, BLOOD, CARDIAC , CONTROL, PECTORALIS, SKELETAL , SMOOTH, ABDOMINAL, BICEPS, BRAIN, CALF , CIRCULATION, GLUTEUS, HAMSTRING, HEAT, INTESTINES, LATISSIMUS, MOVEMENTS, MYOSIN, PARALLEL, QUADIRECPS, SARCOMERE, STABILIZE, TRAPEZIUS, TRICEPS, VOLUNTARY

Part 3 Review Game

Name:

1-20 = 5 pts Part 3 Lesson 4
*20-*25 * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Score ____ / 100

FEEL THE BURN	DEAD LIFT	FLEXXED	MUSCLE UP	MUSCLES Bonus round 1 pt each
1)	6)	11)	16)	*21)
2)	7)	12)	17)	*22)
3)	8)	13)	18)	*23)
4)	9)	14)	19)	*24)
5)	10)	15)	20)	*25)

Final Question Wager _____/5 Answer:

Part 3 Muscular System

Name:

Part 3 Lesson 1 Muscular System

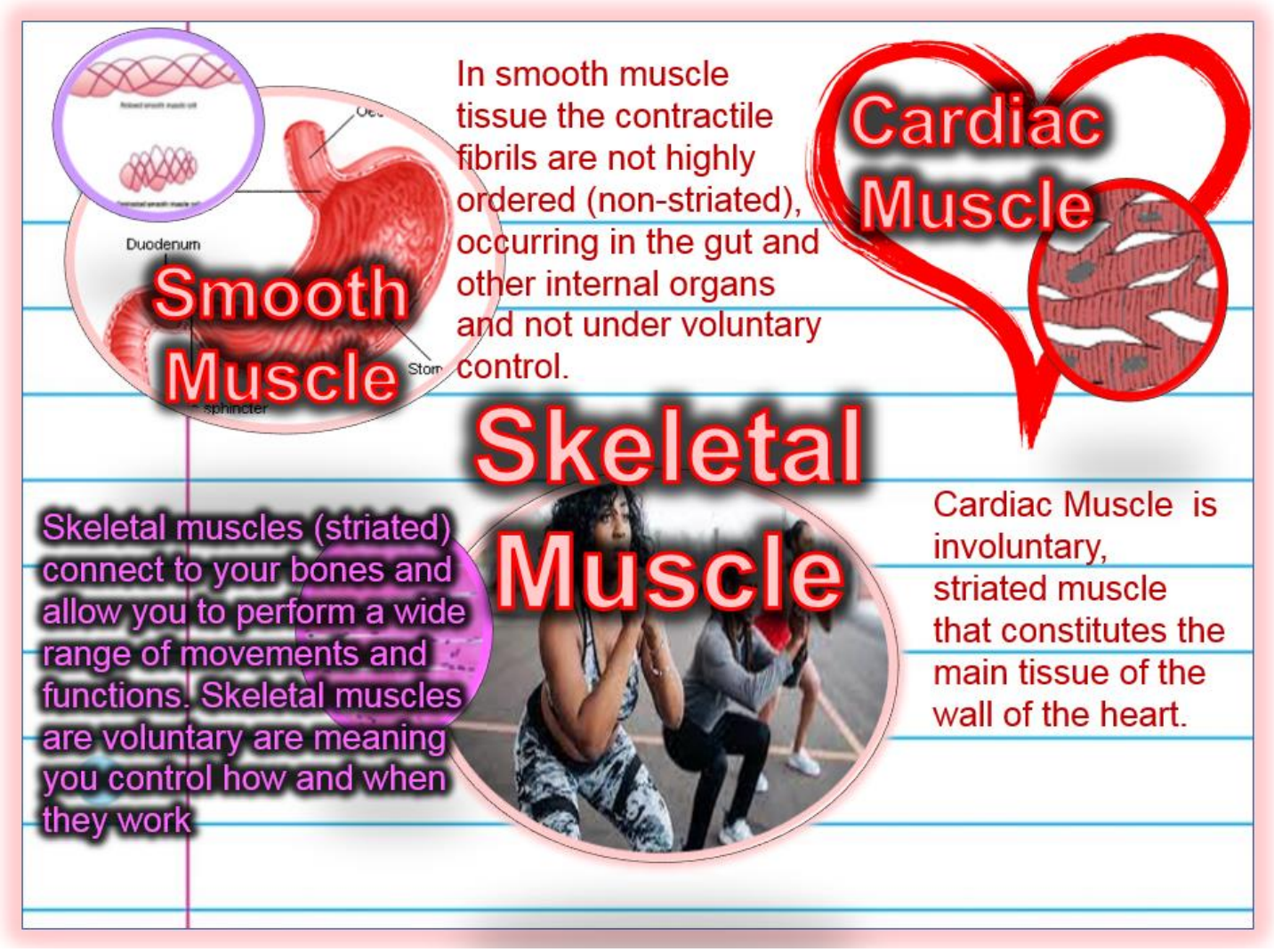
How many muscles are in the human body? 650 muscles

Blood vessels are also woven into the muscles to… bring fresh blood with sugar and oxygen and to remove waste.

Upon stimulation by an action potential from your brain and nerves, skeletal muscles perform a coordinated contraction by shortening.

The human body contains 3 types of muscular tissue.

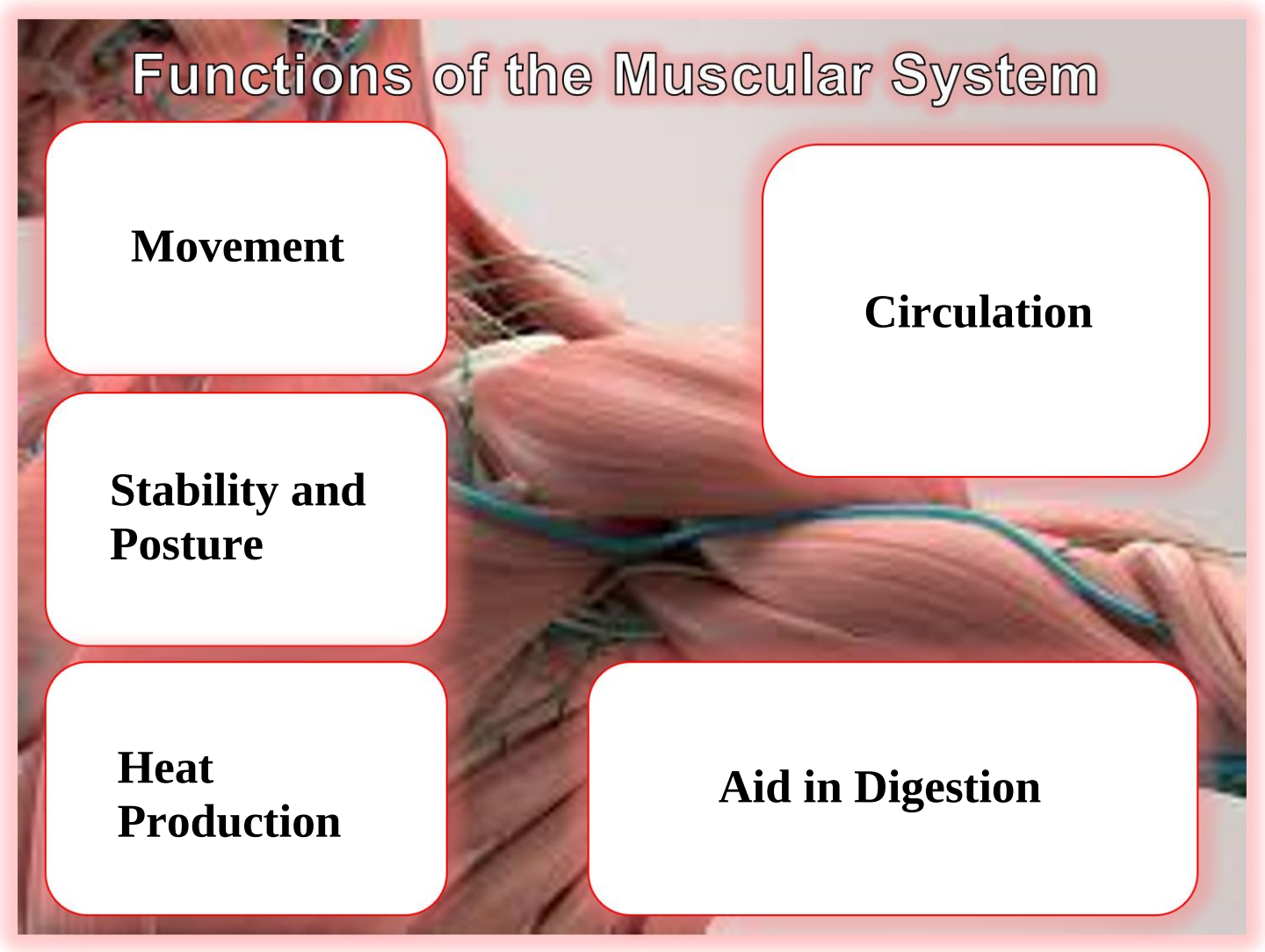
- Skeletal Muscle
- Smooth Muscle
- Cardiac Muscle



Functions of the Muscular System

- Movement: Muscles are responsible for movements of human body parts.
  - They provide the force by using energy to contract. Muscles are the motors of our body, they turn chemical energy of food into mechanical work.

- Stability and Posture: Skeletal muscles stabilize human skeleton. Some joints of human body are weak and they require the support.
- Heat Production: Muscles produce a lot of heat. Heat produced by the muscles is very important in cold climates.
- CIRCULATION: Cardiac muscles provide the force for circulation of blood throughout human body. This keeps blood in motion and nutrients available to every tissue of human body.
- AID IN DIGESTION: Smooth muscles like stomach and the intestines help the digestive system in the process of digestion.
  - They help move food through the system.



Muscle can also be voluntary and involuntary.

- Voluntary muscles you can control.
- Involuntary muscles are ones that you can't control.

◊ Describe the difference between voluntary and involuntary muscles? ◊ You must use a few specific muscles as examples.

Voluntary muscles are muscles that you can contract on purpose. Involuntary muscles contract on their own without conscious control.
Examples of involuntary muscles: pupil dilation, intestines, stomach, diaphragm, etc. Examples of voluntary muscles: calf, bicep, tongue, etc.

Part 3 Lesson 2 Muscles of the Human Body

A sarcomere is the basic contractile unit of muscle fiber.

- Each sarcomere is composed of two main protein filaments—actin and myosin—which are the active structures responsible for muscular contraction.

Muscle Fiber: Long fibers that run parallel to each other and are held together by connective tissue.

- They contract and relax.

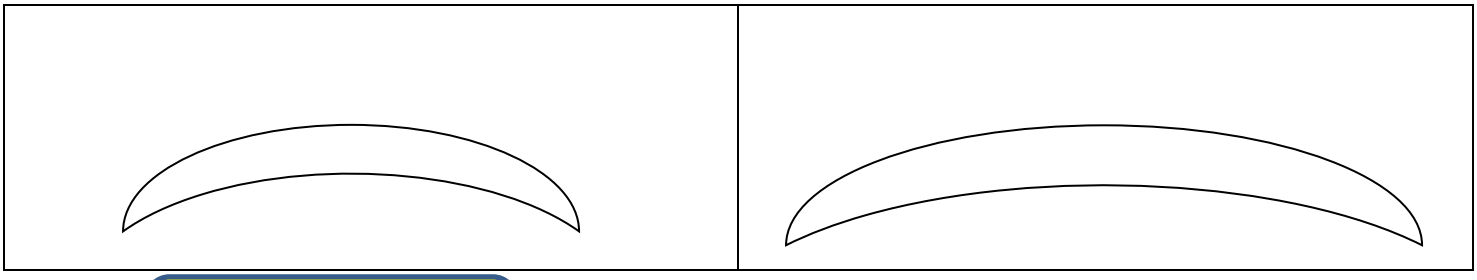
Individual muscles can act only to shorten, and not to lengthen the distance between two attachment points. (Tendons)

- They can only pull, they can't push.

Smooth muscles work by sending a signal in a wave over several cells

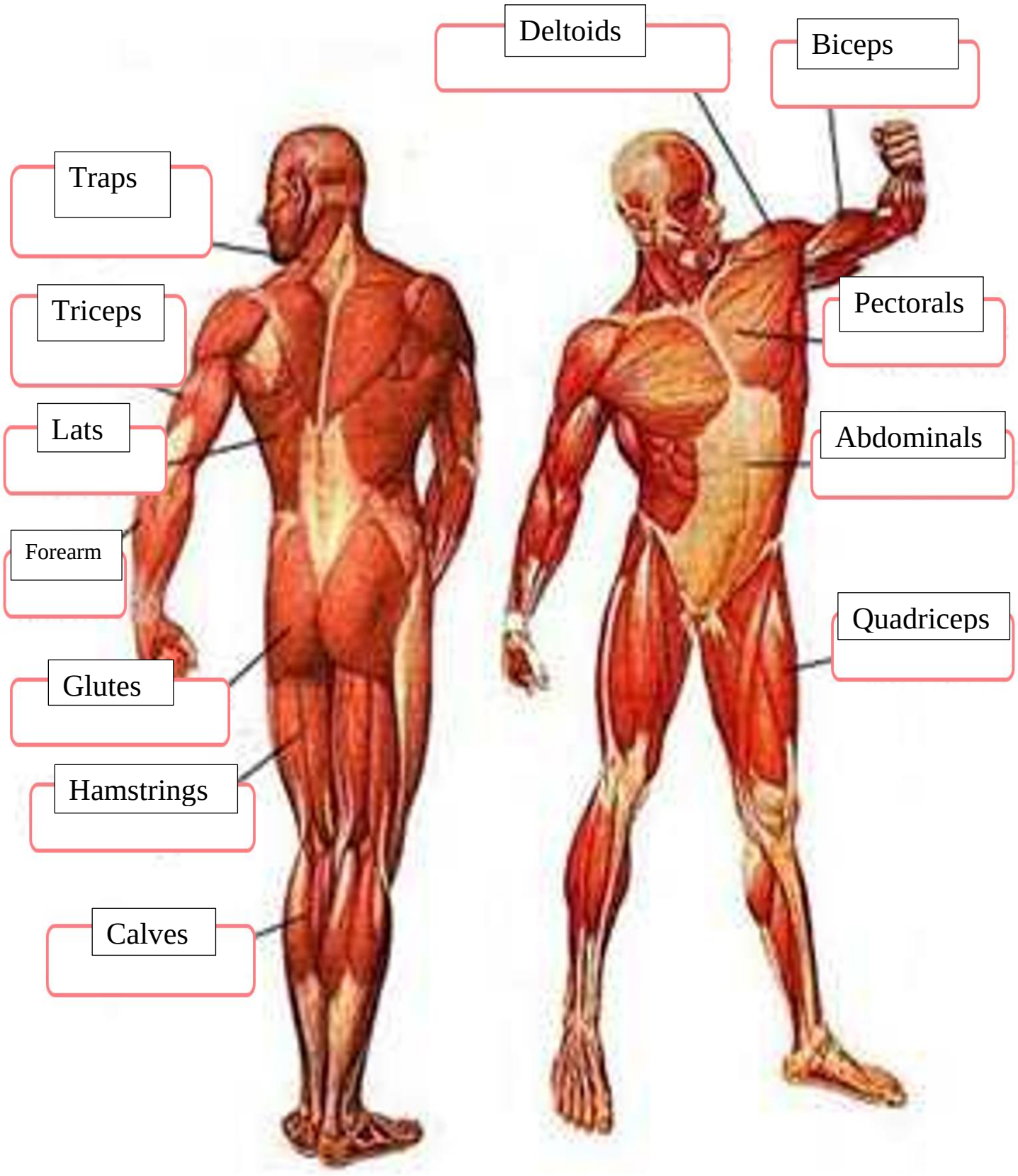
- This wavelike action helps in moving food through the intestine.

◊ Which muscle is relaxed? and which is contracted?



Contracted

Relaxed

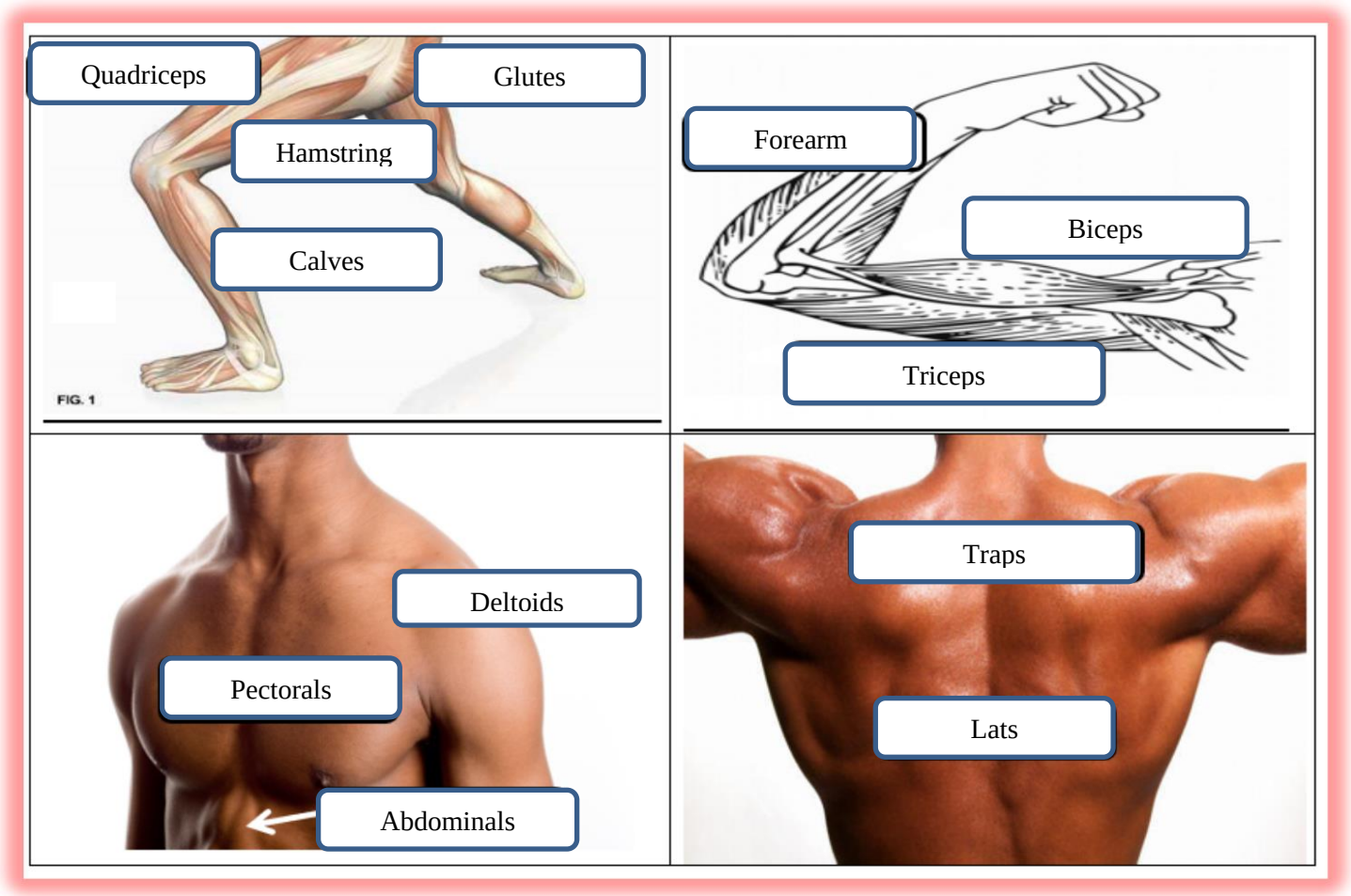


Quiz Wiz! Name that muscle on Stallone.

1) Bicep	2) Pectorals	3) Abdominals
4) Lats	5) Deltoids	6) Calves

7) Quadriceps	8) Tricep	9) Glutes
10) Traps	*11) Adonis Creed, Apollo Creed	

◊ Please label some of the muscles below?



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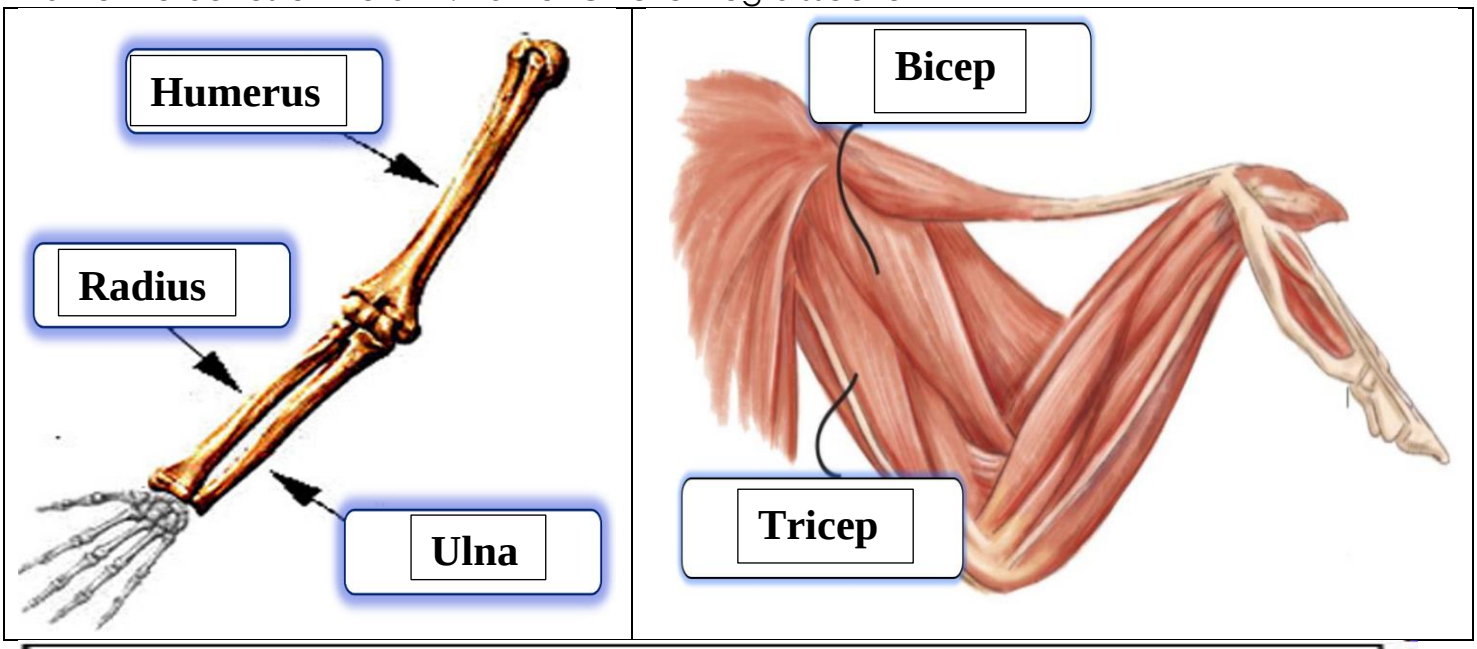
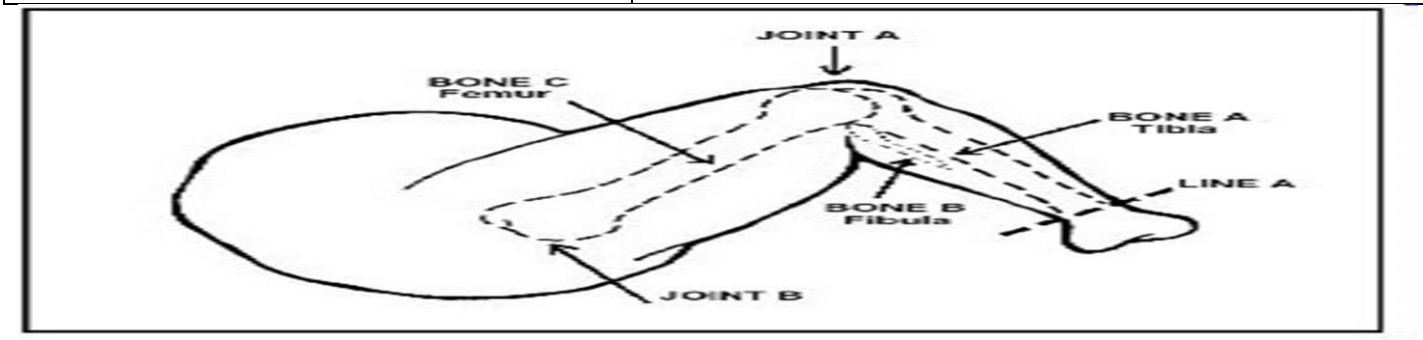
Name the bones of the arm. Part of Chicken leg dissection





Chicken Leg Dissection

Name:_____

Tissue	Color	Stretch (Y/N)	Hard (Y/N)	Fibers (Y/N)	Thick (Y/N)
Skin	Yellowish white	Yes	No	No	Thin
Muscle	Pink	Yes	No	Yes	Thick
Tendon	White	Yes	No	Yes	Thin
Ligament	White/yellow	Tough	Tough	Yes	Thin
Cartilage	White/grey	Tough	½	Yes	Thin ½
Bone	Pink and white	No	Yes	Yes Collagen	Thick Marrow

Across

2. _____ vessels are also woven into the muscles to... bring fresh blood with sugar and oxygen and to remove waste.
3. Upon stimulation by an action potential from your _____ and nerves, skeletal muscles perform a coordinated contraction by shortening.
5. The human body contains 3 types of muscular tissue. - _____Muscle –Smooth Muscle –Cardiac Muscle
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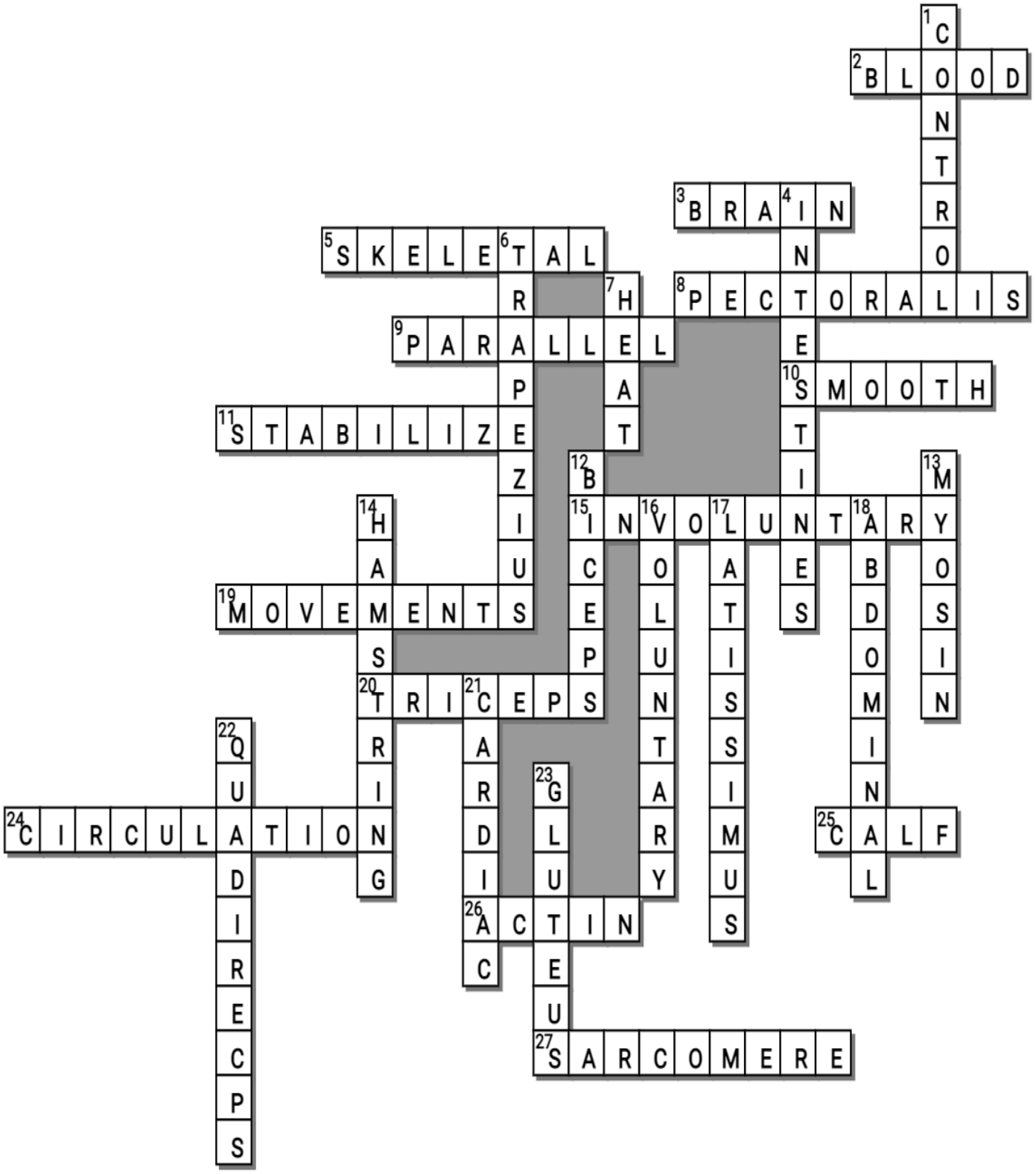

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Part 3 Review Game

Name:

1-20 = 5 pts Part 3 Lesson 4
*20-*25 * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Score ____ / 100

FEEL THE BURN	DEAD LIFT	FLEXXED	MUSCLE UP	MUSCLES Bonus round 1 pt each
1) 650 muscles	6) Parallel	11) A= Biceps B= Triceps	16) Trapezius	*21) Hulk Hogan and Andre the Giant
2) Waste	7) Shorten	12) A= Quadriceps B= Hamstrings C= Calves	17) Latissimus dorsi. "Lats"	*22) Arnold Schwarzenegger
3) Brain, Nerves	8) The contraction of the triceps and relaxation of the biceps produces the effect of straightening the arm.	13) True! It's smooth muscle	18) Gluteus maximus	*23) Ali. (Laila Ali and Muhammad Ali)
4) A= Smooth B= Skeletal C= Cardiac	9) C	14) A= Skeletal muscle B= Cardiac muscle C= Smooth muscle	19) Fascia	*24) He-Man, Master of the Universe
5) Digests food (Smooth muscles help move food through the system)	10) A= Pectoralis B= Abdominals	15) One is a voluntary muscle while the other is an involuntary muscle	20) Sarcomere	*25) Valkyrie

Final Question Wager _____/5 Answer:

Hamstrings