



LESSON PLAN

Subject: Grade 3 Science

Lesson: Springtide Sports

Standards Addressed:

- Compare the different functions of the skeletal and muscular system. (3.L.1.1)

Objectives:

- Students will identify the skeletal and muscular systems.
- Students will categorize the body movements as being caused by skeletal system, muscular system, or both.
- Students will compare & contrast the skeletal and muscular systems.

Materials Needed:

- A device for watching the “Springtide Sports” video
- The “Springtide Sports” activity sheet
- Pen or pencil

Outline:

- Students will watch the “Springtide Sports” video. Teacher may pause video at intervals to relate the topics to things learned in class.
- Teacher will review skeletal structure, muscular system, and movement with the class.
- Students may complete the activity pages individually or in pairs.

Take It Further: *Build an Arm.* Discuss with students the parts of the arm that are causing it to move. Tell them that the bones cannot move alone, they need a muscle to help them. Tell students that they will be creating a model of the bicep muscle in the arm to help them better understand how that muscle helps them move their arm. Use the second page for instructions to build an arm out of a straw and rubber band.

From: <https://www.wheretomorrowbegins.org/climb/wp-content/uploads/2013/02/Science-Grade-3-Life-Unit-3L1.pdf>

Cross-Curriculum Connection: Go outside with hoop & sticks if you have them. If not, find a game like baseball, kick ball, etc. that the children can play. Have them observe and feel how their muscles react to the game. Have them describe which bones and skeletal muscles are primarily used to play the game. Have them play long enough to get their heart pumping. Can they feel their heart muscle working? Teach them to find their pulse rate.



Take it Further: Build an Arm

Bones cannot move by themselves. They need muscles in order to move. Muscles called skeletal muscles are attached to a bone and allow movement. These muscles pull bones to move them. A strong band of tissue called a tendon connects a muscle to a bone. Muscles can be damaged. A muscle tear occurs when the fibers of a muscle are separated by a sudden force or stretching. The quick start of runners who run short dashes can result in a tear. A muscle strain occurs when muscles that have not been exercised for several weeks are overused.

Materials (per student pair):

- two bendable straws
- one rubber band
- two paper clips
- scissors
- pushpin (optional)

Engage:

Have students put one hand, palm up, against the underside of their desk and push upward. With their other hand, have them feel the front and back of their upper arm. Discuss with students what they think is happening. This will give you their prior knowledge about muscles.

Explore:

Discuss with students the parts of the arm that are causing it to move. Tell students that they will be creating a model of the bicep muscle in the arm to help them better understand how that muscle helps them move their arm. Pass out materials to each student group.

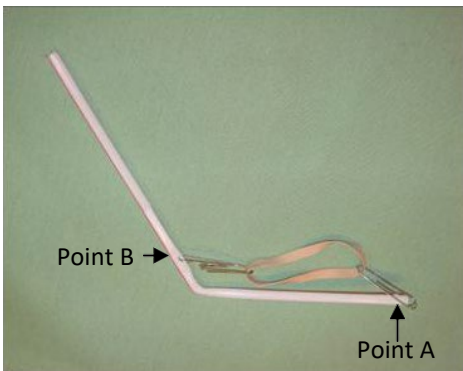
Procedure:

- First, students will cut the bendable part off of one straw.
- They will then insert the cut straw into the bendable end of the other straw. The point where the straw bends represents the hinge joint in the arm.
- Students should then poke one paper clip into Point A of the straw structure as shown in the figures below. (If students have difficulty poking the paper clips through the straws, a pushpin may be used to poke a hole first.)
- Students will then poke the second paper clip into Point B of the straw structure as shown in the figures below. These paper clips represent the tendons that attach the muscles to the bones.
- Once the paper clips have been properly attached, the students will hook the rubber band onto each of the paper clips as shown in the diagram below. This represents the bicep muscle.

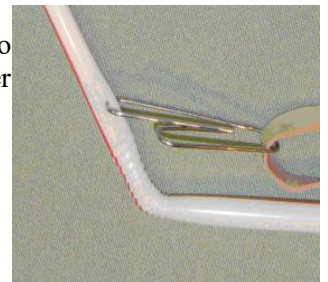
Once the students have created their model, they should be able to pull the rubber band to simulate bicep muscle contraction.



Tell students that the muscles that are attached to and move the bones are called skeletal muscles. These muscles are attached to bones by a tough cord called a tendon. Skeletal muscles pull bones to move them. Muscles do not push bones. The names of the muscles in the upper arm are the biceps and triceps.



Have students flex their arm. Feel the top of the arm. This is called the bicep. Have students discuss how this is similar to what they saw happen with their arm model. Now straighten your arm. The muscle on the other side of the upper arm, the triceps, contract and your arm straightens.



Springtide Sports: Keep Moving Forward

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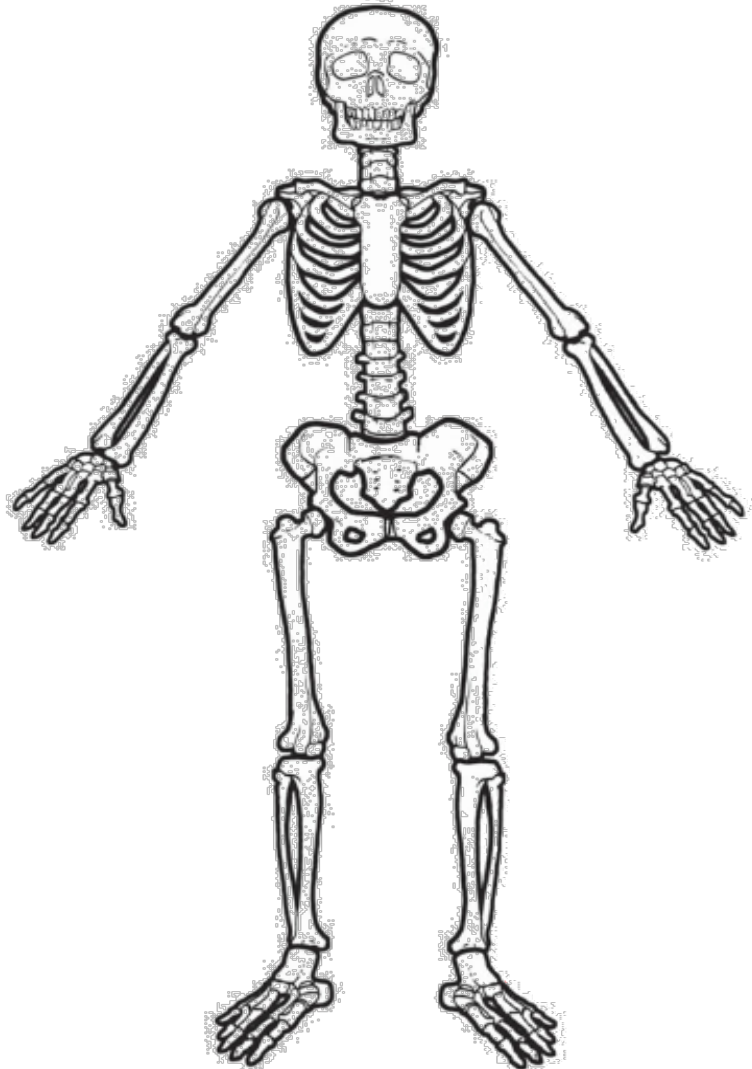
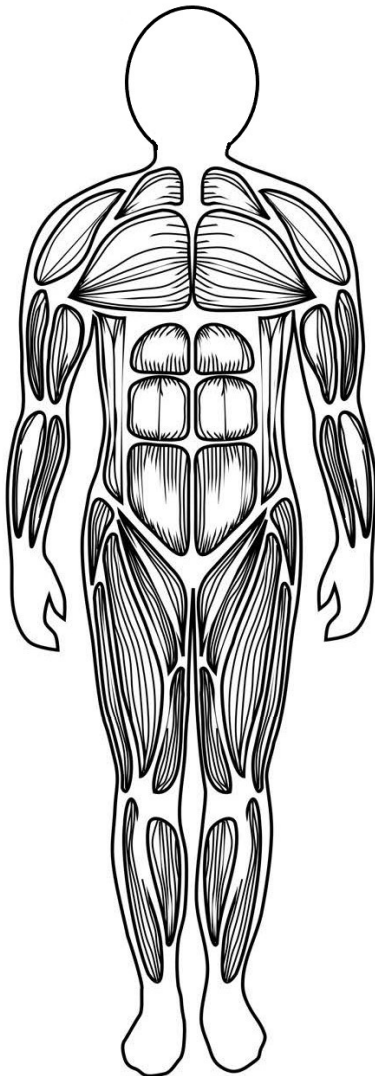


Name: _____

Date: _____

Activity 1: Could you play the Hoop & Stick game if you didn't have bones? _____

Label the system represented by each picture.




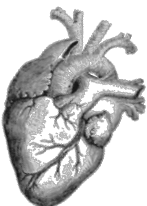

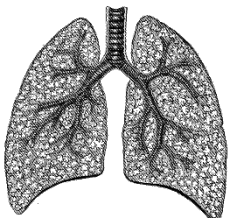
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Name: _____

Date: _____

Activity 2: In the chart below, describe the graphic and categorize whether it is bone muscle or both.

Graphic	Description	Bone, Muscle or Both?
	ROLLING WITH HOOP AND STICK	
	HEART BEATING	
	TOSSING GRACE RINGS	
	LUNGS EXPANDING & CONTRACTING	



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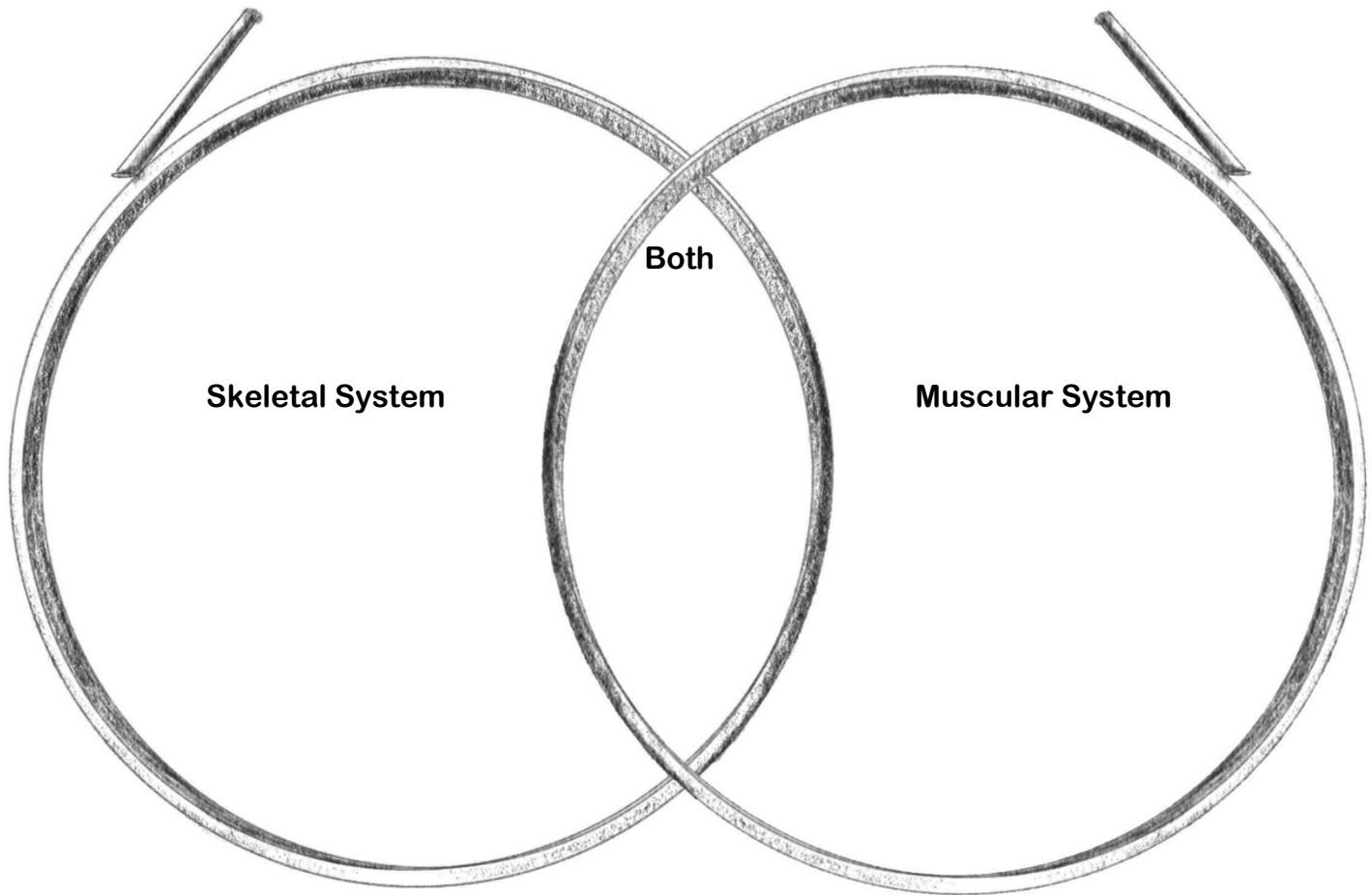
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Name: _____

Date: _____

Activity 3: While playing hoop and stick Tara uses her skeletal *and* muscular systems. Compare and contrast the skeletal and muscular systems by using the description in the word bank.



Support & protect body
Made of tissues
Protects soft tissues

Made of bone
Found in internal organs
Helps body move

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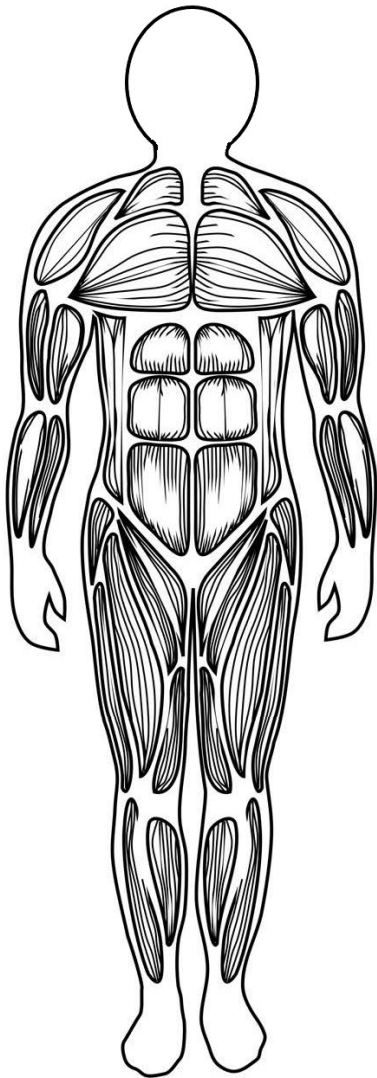
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ANSWER KEY

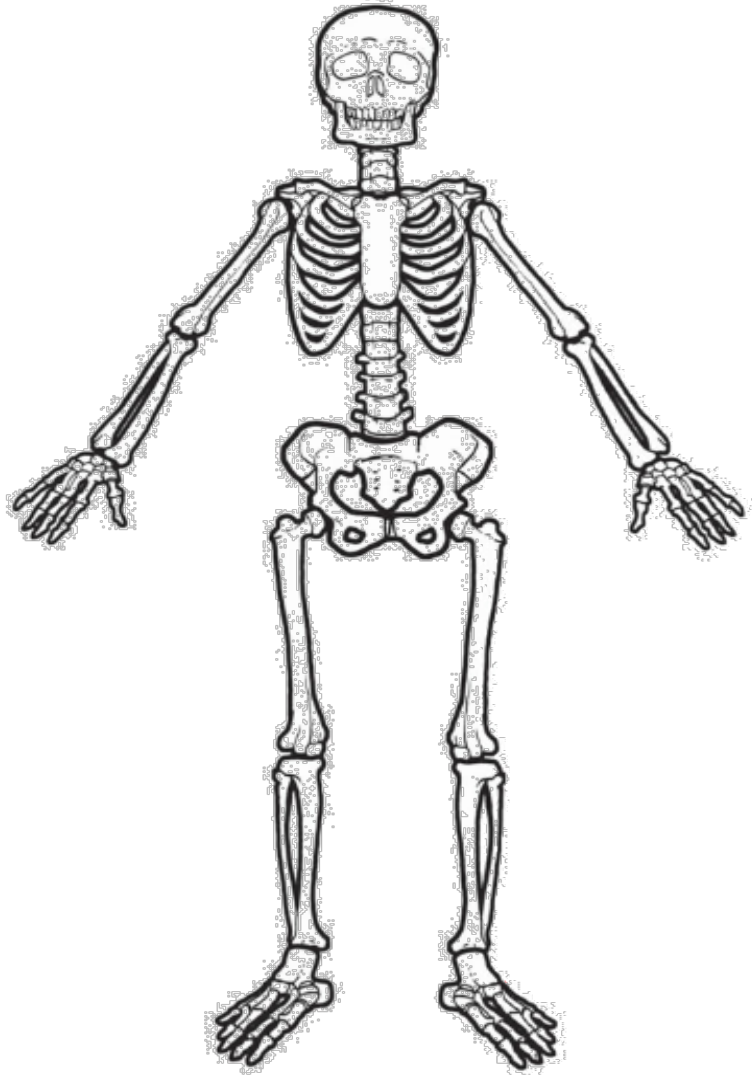


Activity 1: Could you play the Hoop & Stick game if you didn't have bones? _____ **NO** _____

Label the system represented by each picture.



MUSCULAR SYSTEM




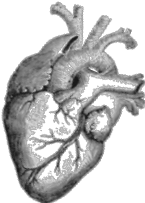

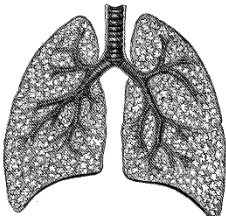
SKELETAL SYSTEM

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ANSWER KEY

Activity 2: In the chart below, describe the graphic and categorize whether it is bone muscle or both.

Graphic	Description	Bone, Muscle or Both?
	ROLLING WITH HOOP AND STICK	BOTH
	HEART BEATING	MUSCLE
	TOSSING GRACE RINGS	BOTH
	LUNGS EXPANDING & CONTRACTING	MUSCLE

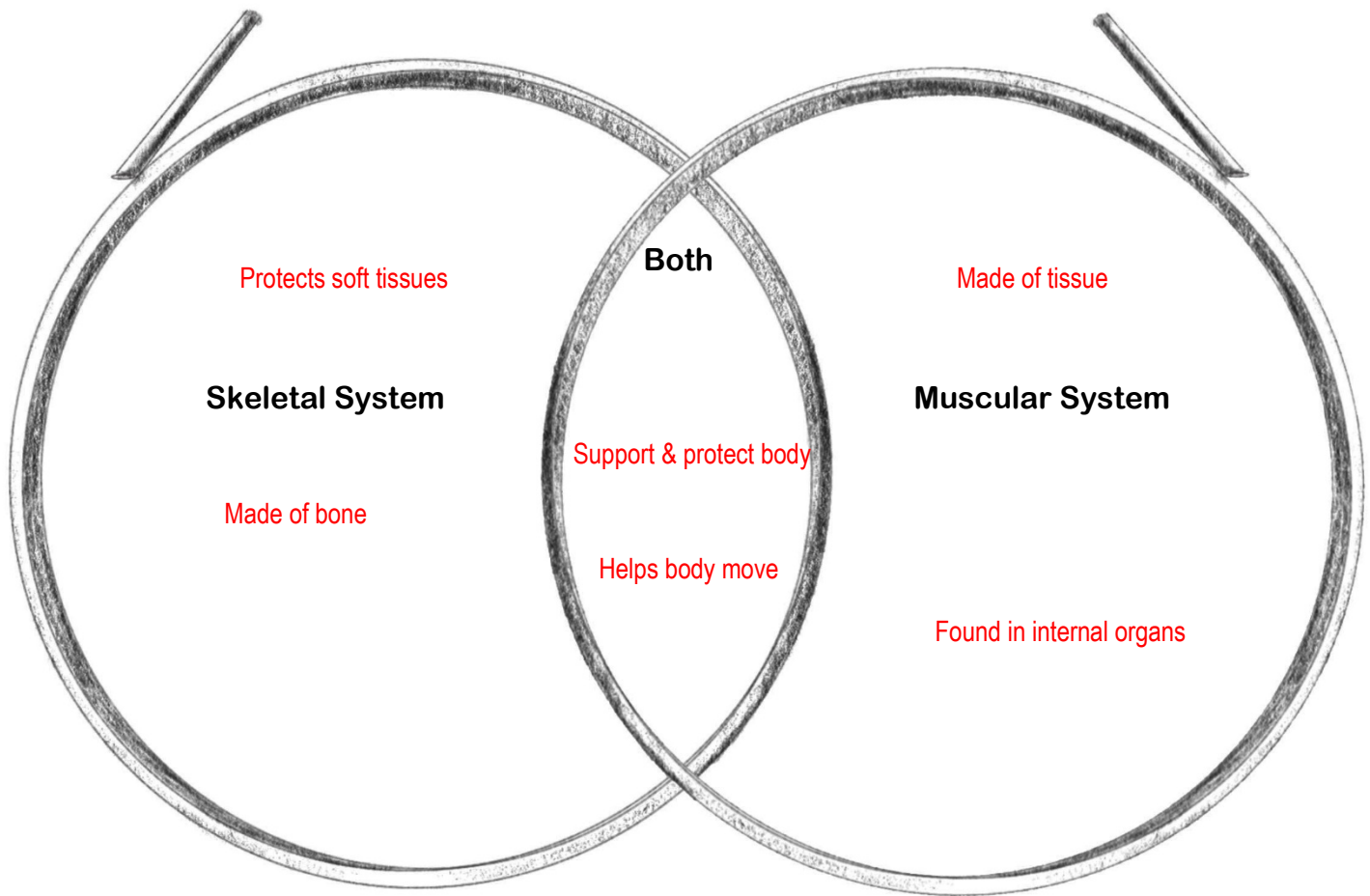


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ANSWER KEY

Activity 3: While playing hoop and stick Tara uses her skeletal *and* muscular systems. Compare and contrast the skeletal and muscular systems by using the description in the word bank.



☐ Support & protect body
☐ Made of tissue
☐ Protects soft tissues

☐ Made of bone
☐ Found in internal organs
☐ Helps body move