



# Marvelous Moving Muscles

3

## ✓ Lesson Objectives

### Core Content Objectives

Students will:

- ✓ Identify the muscular system
- ✓ Recall basic facts about the muscular system
- ✓ Define the heart as a muscle that never stops working

### Language Arts Objectives

The following language arts objectives are addressed in this lesson. Objectives aligning with the Common Core State Standards are noted with the corresponding standard in parentheses. Refer to the Alignment Chart for additional standards addressed in all lessons in this domain.

Students will:

- ✓ Describe the connection between the muscular system and the skeletal system (RI.1.3)
- ✓ Describe an illustration of a smiling child and use pictures and details in “Marvelous Moving Muscles” to describe the read-aloud’s key ideas (RI.1.7)
- ✓ With assistance, categorize and organize facts about the muscular system to answer questions (W.1.8)
- ✓ Generate questions and gather information to add to a KWL Chart pertaining to *The Human Body* (W.1.8)
- ✓ Add drawings to descriptions of the muscular system to clarify ideas and thoughts (SL.1.5)
- ✓ Sort the words *voluntary* and *involuntary* into categories to gain a sense of the concepts they represent (L.1.5a)
- ✓ Share writing with others

- ✓ Prior to listening to “Marvelous Moving Muscles,” orally identify what they know and have learned about the skeletal system
- ✓ Prior to listening to “Marvelous Moving Muscles,” orally predict what one muscle in the human body is necessary for life and then compare the prediction with the actual outcome

## Core Vocabulary

**involuntary, *adj.*** Done without choice or thought

*Example:* Breathing is an involuntary action.

*Variation(s):* none

**muscles, *n.*** Tissues that enable your body to move

*Example:* Her muscles flexed as she lifted the weights.

*Variation(s):* muscle

**muscular system, *n.*** The body system that helps the body and organs inside the body move

*Example:* There are three types of muscles in the muscular system.

*Variation(s):* muscular systems

**tendons, *n.*** Tough tissues that connect muscle to bone


*Example:* Long-distance runners sometimes tear their tendons from overuse.

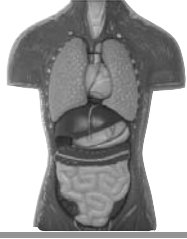
*Variation(s):* tendon

**voluntary, *adj.*** Done by choice

*Example:* His participation in the race was voluntary.

*Variation(s):* none

<i><b>At a Glance</b></i>	<b>Exercise</b>	<b>Materials</b>	<b>Minutes</b>
<b><i>Introducing the Read-Aloud</i></b>	<b>What Have We Already Learned?</b>	model skeleton (optional)	10
	<b>Making Predictions About the Read-Aloud</b>		
	<b>Purpose for Listening</b>		
<b><i>Presenting the Read-Aloud</i></b>	<b>Marvelous Moving Muscles</b>		15
<b><i>Discussing the Read-Aloud</i></b>	<b>Comprehension Questions</b>		10
	<b>Word Work: Voluntary</b>		5
 <b>Complete Remainder of the Lesson Later in the Day</b>			
<b><i>Extensions</i></b>	<b>Know-Wonder-Learn Chart</b>	KWL Chart	20
	<b>“My Body Systems” Booklets</b>	“My Body Systems” booklets, drawing tools	



# Marvelous Moving Muscles

3A

## Introducing the Read-Aloud

10 minutes

### What Have We Already Learned?

Remind students that Dr. Welbody, the rhyming pediatrician, is teaching them about various systems at work within their bodies. Each system is made up of different organs or parts that do special jobs for the human body. The systems are all tied together in a network to keep the human body alive and healthy.

Ask students to share what they learned from the previous read-aloud about the skeletal system. You may want to use the model of the skeleton to point out features being discussed. You may prompt discussion with the following questions:

- Can you name some of the bones that make up the skeletal system and tell me where they are located? (ribs, spine, skull, etc.)
- What would happen if we didn't have a skeleton to support our bodies? (We would be like rag dolls and couldn't stand up.)
- Other than being the body's framework, what else does a skeleton do? (helps with movement of the body; protects important organs)
- What does your skull protect? (brain)
- Can you name some places in your body where joints help you bend? (knees, elbows, hips, shoulders, ankles, wrists, fingers, toes)

As students share, expand their responses using richer and more complex language, including, if possible, any read-aloud vocabulary.

Now, remind students that at the end of the previous read-aloud, Dr. Welbody said that today's lesson was about a system that works with the skeletal system to help us move. Ask students to

guess the name of that system. Tell them that today they are going to learn about the muscular system.

### **Making Predictions About the Read-Aloud**

---

Tell students that everybody has many muscles, but that there is one very important muscle that is necessary for life. If that one muscle were to stop working, they would not be able to live. Ask them to predict the name of that muscle.

### **Purpose for Listening**

---

Tell students to listen carefully to see if their predictions about the most important muscle are correct.



## Marvelous Moving Muscles

### Show image 3A-1: Dr. Welbody, flexing her biceps

Hi everyone! It's Dr. Welbody, the rhyming pediatrician, back to talk about the human body. Did you figure out what we're going to talk about this time? <sup>1</sup> That's right! **Muscles!** Your muscles help your body move, so you can walk, breathe, swallow, speak, and do many other things. Together your muscles make up your **muscular system**. <sup>2</sup>

1 [Pause for student responses.]

2 What is a system? (a group of organs working together)

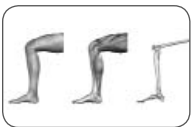


### Show image 3A-2: Muscular system

There are 650 muscles in your body. <sup>3</sup> Some muscles are big, like the ones in your legs. Some are small, like the ones in your face. Muscles crisscross the body so you can move in many ways. Muscles move by contracting (or getting shorter) and then relaxing (or getting longer). <sup>4</sup>

3 Who remembers how many bones we have in our skeleton? (206)  
Do we have more bones or more muscles in our bodies?

4 [Ask students to feel their bicep muscles contract/shorten as they flex them and then relax/lengthen as they extend their arms.]



### Show image 3A-3: Three views of the knee

**Tendons** are part of your muscular system. Feel behind your knee. <sup>5</sup> There are some strong rope-like bands under the skin. They are called tendons. <sup>6</sup> Tendons are cords that attach your muscles to your bones.

5 [Pause until all students are engaged.]

6 [Have students repeat the word *tendons* with you.]



### Show image 3A-4: Arm muscles at work

The muscles that move your bones are called your skeletal muscles. Skeletal muscles are **voluntary** muscles. That is because you control them with your brain by thinking. Pretend that you are throwing a ball. Your brain tells your arm muscles to move back first and then move forward. At the same time, your brain is telling your hand muscles when to grasp the ball and when to let it go.

- 7 [Pause until all students are engaged. Point to the biceps and triceps muscles in the picture as students find their own.]



← **Show image 3A-5: Muscles in the hand**

Two muscles often work together, in a pair, to move bones. Touch the top of your upper arm.<sup>7</sup> That is where your biceps muscle is found. Now touch the underside of your arm. That is where the triceps muscle is located. When you threw that pretend ball just now, the bicep muscles bent your elbows. The triceps straightened your elbows.

- 8 What system did you learn about yesterday that works with the muscular system to help your body move? (the skeletal system)



← **Show image 3A-6: Child smiling widely**<sup>9</sup>

The muscles of your hand and arm work together in many ways. They help you make tiny, exact movements like picking a crumb up off the table. And they are there for you, too, when you need great strength, like doing a handstand. The most movable part of your hand is your thumb. Try wiggling yours. It can move in many different directions, more than any of your other fingers.<sup>8</sup>

- 9 What do you see in this picture?

There are many muscles in your face, mostly attached to your skin. Did you know that you need muscles to help you laugh, frown, or even raise your eyebrows? All the muscles we've talked about so far are voluntary, meaning you have to decide when to move them.

Other muscles in your body are **involuntary**. That means that you don't have to think about telling these muscles to move; they do it automatically. Involuntary muscles keep your blood flowing and your food moving through your body. Think about these two actions your body does: kicking a ball and blinking your eyes. Which do you think is voluntary and which is involuntary? Can you tell me why?<sup>10</sup>

- 10 [Pause for student responses.]



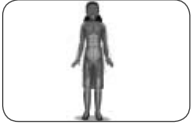
← **Show image 3A-7: Heart**<sup>11</sup>

- 11 What is an organ? (a body part that performs a specific function, such as the stomach or kidneys) What organ do you see in this picture?

- 12 [Pause for student responses.]

Do you have to tell your heart to beat, or does it work automatically on its own?<sup>12</sup> Your heart is another kind of involuntary muscle. It is called cardiac muscle. This thick, powerful muscle contracts and relaxes over and over and over again on its own without stopping. It pumps the blood all around your body, once every minute! Your heart is a very important muscle that is necessary for your body to live.

Do you want to know which muscle is the largest muscle in your body? Here's a hint: You are probably sitting on it right now! It is your gluteus maximus, or buttock muscle. You have two of them, one on each side.



◀ **Show image 3A-8: Dr. Welbody's muscular system**

Now, since our time together is coming to a close for today, here is a goodbye rhyme from Dr. Welbody, the rhyming pediatrician (that's me):

*I'm glad that I have muscles.*

*They help me to have fun,*

*To jump and kick a soccer ball,*

*To smile and speak and run.*

*I'm glad that I have muscles,*

*And glad that you do, too,*

*So you can wave goodbye to me*

*And I can wave to you!*

When we meet next time, we'll have a lot to chew on. That's a clue to what system of the body we'll be learning about. Can you guess what it is?<sup>13</sup> See you again soon!

13 [Pause for suggestions.]

### Comprehension Questions

10 minutes

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* What is the name of the important muscle that needs to keep working in order for us to stay alive? (heart) Were your predictions correct? (Answers may vary.)
2. *Literal* What is the job of the heart, or cardiac, muscle? (It pumps blood all around the body.)
3. *Literal* What is the name of the system that includes all the muscles? (muscular system)
4. *Literal* What do muscles help your body to do? (move)
5. *Literal* What is the name of the other system that works with the muscular system to help our bodies move? (skeletal system)
6. *Literal* Tendons are rope-like bands under the skin. What two things do they join together? (muscles and bones)
7. *Inferential* What do the muscles in your face help you to do? (smile, frown, laugh, raise eyebrows)
8. *Evaluative* What is the difference between voluntary and involuntary muscles? (A person must decide to move voluntary muscles, but involuntary muscles work on their own.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.



9. *Evaluative Think Pair Share:* Besides your heart muscle, which muscles do you think you use the most on a school day? Explain your answers. (Answers may vary.)
10. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these remaining questions.]

### **Word Work: Voluntary**

**5 minutes**

1. In the read-aloud you heard, "Skeletal muscles are *voluntary* muscles."
2. Say the word *voluntary* with me.
3. *Voluntary* means thinking and choosing to do something rather than doing it automatically.
4. My decision to wear a coat today was a voluntary decision.
5. Tell about something that you did that was voluntary, or something you chose to do. Try to use the word *voluntary* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase the students' responses: "My decision to eat my apple at lunch was a voluntary decision."]
6. What's the word we've been talking about?

Use an *Antonyms* activity for follow-up. Directions: *Involuntary* is the opposite of *voluntary*. *Voluntary* means you think about doing something and make a choice to do it. *Involuntary* means something that is happening without your thinking about it or something you do not choose to do. If any of the things I say sound voluntary, say, “That is voluntary.” If the things I say sound involuntary, say, “That is involuntary.”

1. James decided to practice the piano before dinner.  
(That is voluntary.)
2. My heart was beating very fast as I swam across the pool.  
(That is involuntary.)
3. Carla selected a yellow shirt from her closet to wear today.  
(That is voluntary.)
4. Juanita blew out the candles on her birthday cake.  
(That is voluntary.)
5. The dog started panting as he ran along the hot road.  
(That is involuntary.)



**Complete Remainder of the Lesson Later in the Day**



# Marvelous Moving Muscles

3<sub>B</sub>

## Extensions

20 minutes

### Know-Wonder-Learn Chart

Review any information that students shared about the muscular system on the KWL Chart (the 'K' and 'W' columns). Ask if there is any information in the 'K' column that should be revised based on what they learned in the read-aloud. Reread small sections of the text aloud as necessary to help students check the accuracy of their responses. For example, "Yesterday when we were talking about what we knew we said that our hearts are shaped like Valentine hearts. What do you think now?" Then cross out the inaccurate information in the 'K' column. Make necessary revisions. Then ask if they discovered the answers to any of their questions. If so, record relevant answers in the 'L' column. Ask what else they learned from the read-aloud, recording these responses under the 'L' column as well.

### "My Body Systems" Booklets

Today students will complete the second page of their booklets. Hand out the prepared booklets.



#### ◀ Show image 3A-8: Dr. Welbody's muscular system

- Assist students in filling in the blank at the top of the page: My Muscular System.
- Ask students to use Dr. Welbody's muscular system as a model for drawing their own muscular systems within the body shape on the second page. It should be emphasized that students' drawings need not be a perfect depiction of Dr. Welbody's muscular system. The goal of this activity is for students to become more aware of the details of the muscular system through the activity of drawing it. Later in the domain, when students' knowledge of the body's systems is assessed, they will be asked to recognize, rather than draw, the various systems.

- ✍ Above and Beyond: When students have finished drawing, instruct those who are ready to do so to use the lines at the bottom of the page to write a sentence using the word *muscle*. For example, “I exercise my muscles to make them strong.” [Some students may need to dictate their sentences to an adult.]
- Have students share their writing and drawings with each other.