



# LESSON PLAN

## HUMAN BODY SYSTEMS GRADES 3-5

### SUMMARY

Students identify the major body systems, which include the circulatory, digestive, respiratory, muscular, and nervous system, and explore how each system is interconnected to help the body survive.



**MS-LS1-3** Use argument supported by evidence for how the body is a system of interacting subsystems.

Science & Engineering Practices	Connections to Classroom Activity
<p><b>Developing and Using Models</b> <b>Constructing Explanations</b> <b>Obtaining, Evaluating, and Communicating Information</b> (MS-LSS1-3)</p>	<ul style="list-style-type: none"> <li>• Develop a model to explain how a human body system functions.</li> <li>• Use evidence to explain how the human body system works.</li> <li>• Obtain information from media sources to explain how human body systems function individually and together.</li> </ul>
Disciplinary Core Ideas	Connections to Classroom Activity
<p><b>LS1.A: Structure and Function</b> In multicellular organisms, the body is a system of multiple interacting subsystems.</p>	<ul style="list-style-type: none"> <li>• Make comparisons of how each body system functions and explain how these systems are interconnected.</li> </ul>

## Crosscutting Concepts

## Connections to Classroom Activity

### Systems and System Models (MS-LSS1-3)

- Explain how multiple body systems interact with each other to help keep the body functioning.

## DURATION

One to two 45-minute classroom periods

## PRE-ASSESSMENT QUESTIONS

Please see Discussion Questions. These can be discussed as a group or answered individually in student science notebooks.

## MATERIALS

- Science notebooks
- Pencils

### Station 1

- Two vegetable cans (or any canned food)

### Station 2

- Two brown paper bags
- Two straws per person
- Tape
- Marker

### Station 3

- Image of human leg muscle
- Image of human heart and brain



## ENGAGE

Show students a car. It can either be in the form of an image or an actual model toy car. Ask students to list the various parts of the car, such as the wheels, engine, steering wheel, headlights, and trunk. Explain to students that each of these parts has a specific function, but they must work together for the car to move. Ask students to pick two car parts and describe how they might work together for the car to function properly. For example, the steering wheel turns the wheels so that a person can drive.



## EXPLORE

Explain to students that they will be exploring how several different body systems function in the body. They will discover how these systems work together to help the body function properly. Students will also identify specific examples as evidence of how the various body systems work together. Set up the following stations around the room:

### STATION 1: LET'S MOVE

Place two vegetable cans on the table. First have students perform five bicep curl exercises with one vegetable can, using only one hand. Then have students perform five bicep curl exercises with two vegetable cans, one in each hand.

### STATION 2: MECHANICS OF BREATHING

Take a brown paper bag, place a straw inside of it, and twist the bag around the straw. Secure this twisted end with tape. Repeat this for a second brown paper bag. Label one bag "right lung" and the other bag "left lung" so that the student knows what bag they are blowing into. Make sure to replace the straw after each student has used it, to prevent germs from spreading.



### STATION 3: NAME THAT SYSTEM

Place the images of muscles in the human leg, the human heart, and the human brain on a table. Have students write down what they see and list what body system they belong to.

### STATION 4: INTERCONNECTED SYSTEMS

Students at this station will lead a discussion about how systems work together. Students will then predict what would happen if one or more systems failed, and the overall effect it would have on the body.

#### STATION 1

#### WHAT HAPPENED TO YOUR BODY WHEN YOU USED TWO CANS INSTEAD OF ONE?

Practice curling your arm with just one canned food in your hand. Then curl both arms after placing one canned food in each hand. Write down in your notebook anything you observe and what body systems are used during this type of exercise.

#### STATION 2

#### WHAT HAPPENS TO THE LUNGS AS YOU BREATHE?

What happens to your stomach when you take deep breaths? Think about this as you model what the lungs do while breathing. Write down in your notebook what happens when you blow into the paper bags.

#### STATION 3

#### WHAT IS REQUIRED IN ORDER FOR THE BODY TO FUNCTION PROPERLY?

What do you see in each image? Write your answer in the notebook. As you look at the images think about how these individual body parts work together to help the body function. Allow students to sketch different body systems working together.

#### STATION 4

#### WHAT HAPPENS TO THE ENTIRE BODY IF ONE BODY SYSTEM FAILS TO FUNCTION PROPERLY?

How do our body systems work together? Give examples of multiple systems working together to perform a task. Imagine of one of those systems failed, what would be the result on the body?

Divide students into four groups. Allow the groups to rotate through each station, using their science notebooks to record their observations.



### EXPLAIN

After students complete all stations, begin a classroom discussion about the way each individual body system works and how this plays a role in their ability to work together to help the body function properly. Explain that there are multiple body systems and three were modeled in the stations. Encourage students to list the body systems modeled by each station. Explain that Station 1 focuses on the ability of the muscular system functioning to allow a person to exercise or move, which is the hallmark function of this system. Station 2 focuses on the mechanics of breathing using both lungs in the body. Station 3 shows that evidence such as images can be used when describing the human body system. Station 4 shows how body systems function together, and the necessity of all the systems to live.



### WATCH THE GENERATION GENIUS HUMAN BODY SYSTEMS VIDEO AS A CLASS

Then facilitate a class discussion using the Discussion Questions.



## ELABORATE

In the video, students encounter many different examples of how multiple body systems interact to help the body function. They also view the animations of the digestive system's different stages. Now students will investigate this process of digestion further. Students can use the DIY Activity to explain how the digestive system breaks down food when it is consumed. They should describe what stages are being modeled during their activity. Encourage students to think about what would happen if one of these stages of digestion failed to function properly.



## EVALUATE

Have students think about one type of evidence they could use to support the idea that human body systems interact together. Ask students to explain the type of evidence they would choose and why it would work the best for showing the interaction between human body systems. Students have learned a lot about the different types of body systems. They have also seen multiple examples in the video of how different body systems work together in a unique way to help the body function. Encourage students to use what they have learned from these examples in the video as they construct explanations about their chosen piece of evidence.

## IMAGES

