

Lesson Topic: Multicellular Organisms and their Subsystems**Objective:**

Students will be able to:

1. Identify and describe the organization of multicellular organisms.
2. Describe examples of the organization of human systems.
3. Apply the concept of how multicellular organisms are organized to other examples of objects in their everyday lives.

Time Required: 90 minutes**Materials Needed:**

- Teacher computer with internet access
- Projector/Smartboard
- 1 computer/laptop/iPad per student with internet access
- Multicellular Organisms and their Subsystems handout (attached)
- Blocks (legos would work too) - each group will need enough blocks to build a small wall (4 inches high or so)
- Colored pencils

Teacher Preparation:

- Assign a Legends of Learning Instructional [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Instructional - Middle School - Multicellular Organisms and their Subsystems
- Assign a Legends of Learning Content Review [Quick Play](#) playlist for the day(s) you will be teaching the lesson.
 - Content Review - Middle School - Multicellular Organisms and their Subsystems
- Make copies of Multicellular Organisms and their Subsystems Worksheet (1 per student)

Engage (15 minutes):

1. Put students into small groups (at least 8 groups).
2. Give each group some blocks.
3. Tell students “Everyone hold up one single block.”
4. Tell students now “In your groups, use more blocks to build a wall.”
 - a. Give students a minute or two to complete.
5. Tell students “Now, I want you to join together with 3 other groups and use each of your walls to form a 4 walled-room.”
 - a. Give students plenty of time to complete this task.
6. When all the groups have completed this task, tell students “Now, as carefully as we can, let’s join ALL of our groups together and create a many-roomed building using all four walls joined together from single blocks from the beginning.”
 - a. This part may take several tries, but if walls keep crumbling, just ensure that the students understand that many walls were joined together to create this idea.

7. Tell students “Keep this activity in mind as you continue through the lesson.”

Explore (20 minutes):

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Instructional playlist.
2. Assist students as needed during game play, pause playlist if you need to address content or questions to the entire class.

Explain (20 minutes):

1. Tell students “In living things that have many cells, you can bet they will be organized in a similar way.”
2. Tell students “As you have already learned, cells are the smallest, most basic unit of all living things.”
3. Have students take notes on the Multicellular Organisms and their Subsystems Worksheet while you explain, “When cells work together they create tissues. In the human body we have 4 types of tissues.” (Write on the board)
 - a. Connective tissue - tissue that is used to connect muscles to bone and bone to bone like tendons and ligaments.
 - b. Nervous tissue - tissue that is found in the brain. Brain tissue is called neurons.
 - c. Muscle tissue - tissue that makes up all of our muscles
 - d. Epithelial tissue - skin tissue covering the body and lining the insides of many organs.
4. Tell students “When many tissues work together they form organs.”
 - a. Raise your hand and give me an example of an organ?” (answers will vary but may include: heart, brain, liver, kidney, bladder, lungs etc).
5. Tell students “When many organs work together they make systems, like the nervous system, the digestive system, and the skeletal system to name a few.”
6. Ask students “Think about a nerve cell in the body. Many nerve cells working together will form what? (nervous tissue)
 - a. Many nerve tissues working together form what? (nervous organs such as the brain and spinal cord).
 - b. Many nervous organs working together form what?” (The nervous system).
7. Give students a moment to finish filling in the first page of the Multicellular Organisms and their Subsystems Worksheet.
8. Tell students “Remember that all multicellular organisms are organized this way, not just humans, such as plants and fungi, however they have different kinds of cells, tissues, organs and systems.”
9. Ask students “Now think back to the block activity we completed earlier. How does that relate to what we are learning about?” (the blocks represent the organization of multicellular organisms. One block = cell, wall = tissue, 4-walled room = organ, building with many rooms = organ system).

Elaborate (25 minutes):

1. Tell students “Think back to our block example from the beginning of class, and relate that to how the body is organized (many cells create tissues, many tissues make organs, many organs make systems).
 - a. Come up with your own examples that can help relate how the body is

organized. one house, many houses together create a neighborhood, Many neighborhoods create a town, many towns create a state, many states create a country.

- b. *A common mistake that many students will use as an example is: a baby becomes a toddler, becomes an adolescent, becomes an adult. This is NOT an example.
 - i. If you have one single baby, and then put many babies together it does not make a toddler. Many toddlers together do not make an adolescent and so on. Be sure to make that clear.
2. After students have thought up their example, have them illustrate it on the back side of the Multicellular Organisms and their Subsystems Worksheet.
 - a. They can use colored pencils to color it.
 - b. Students should label the illustrations with the actual items and what the items represent in a multicellular organism.
3. When everyone is finished they can share their illustrated examples.

Evaluate (10 minutes):

1. Have your students [sign in to Legends of Learning](#). Instruct students to complete the Content Review playlist.
2. [Analyze student results](#) to determine what concepts need to be a focus for reteaching.

Additional Lesson Strategies:

- To use Legends for additional instruction, create a [custom playlist](#) with an [instructional game](#) and pre and post [assessment](#).
- To use Legends for a quick formative assessment, create a 5-question [assessment](#) in a [playlist](#).
- To use Legends for a student-directed experience, create a [targeted freeplay](#) playlist.
- Encourage students to play on their own at home in [Legends of Learning: Awakening](#) for a student-driven experience including avatars, battling, and quests all centered around topics they are covering in class.



Name: _____

Multicellular Organisms and their Subsystems

1. Many _____ work together to make tissues.

Tissue Types:

Connective -

Nervous -

Muscle -

Epithelial -

2. Many _____ work together to make organs.

Examples of organs:

3. Many _____ work together to make systems.

Examples of systems:

Organization of Multicellular Organisms

_____ → _____ → _____ → _____



In the space below, draw and color an example of how multicellular organisms are organized (many cells create tissues, many tissues create organs, many organs create systems).