Unit 6: Life: From Cell to Body System

Content Area: **Science**
Course(s): **Science 7**
Time Period: **April**
Length: **5 weeks**
Status: **Published**

Transfer

Life: From cell to Body System

"How do cells make up a body system that interacts and works together?

Ch 7- Body systems **(12 blocks)**

Enduring Understandings

A cell is made up of structures that provide support and movement, process energy, and transport material into, within, and out of a cell.

An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).

Groups of cells that work together form tissues or organs that are specialized for particular body functions.

The human body is composed of systems that have specialized organs, tissues and cells that are used to carry out life processes.

The structure of a function has a distinct effect on its function.

Change affects human bodies.

Essential Questions

What is cellular respiration?

How do unicellular and multicellular organisms differ?

How does cell differentiation lead to the organization with in a multicellular organism?

How do nutrients enter and exit the body?

How do nutrients travel through the body?

How are nutrients, waste and gasses transported through the human body?

How does the body move?

How does the body respond to changes in the environment?

How does the structure of a system affect its function?

How are the human body systems inter-related?

When is balance in a body system achieved?

How does change affect humans?

Content

Vocabulary

Essential vocabulary

Organ system, Homeostasis, Immune system, Circulatory system, Excretory system, Digestive system, Respiratory system, Muscular system

Nervous systems

Learning Objectives

Compare cells, tissues, organs, and organ systems.

Relate the body's organization to how homeostasis is maintained.

Different how organs can work together as subsystems to form organ systems that carry out complex functions (e.g., the heart and blood vessels work together as the circulatory system to transport blood and materials throughout the body).

Explain and illustrate how the circulatory, excretory, digestive, respiratory, muscular, and nervous systems are interdependent. **Write an argument to justify** connection of systems.

Design an investigation to show how the nervous system responds to stimuli and stores information. **Collect data** and **justify**findings.

Provide evidence that illustrates the causal relationships between information received by sensory receptors and behavior, both immediate and over longer time scales (e.g., a loud noise processed via auditory receptors may cause an animal to startle immediately or may be encoded as a memory, which can later be used to help the animal react appropriately in similar situations).

Resources

Resources

www.pbslearningmedia.org

https://www.khanacademy.org/science/biology

http://www.ehow.com/list_6496823_middle-body-systems-lab-activities.html

iScience Integrated Course 2

Chapters 7

Standards

LA.RST.6-8	Reading Science and Technical Subjects
	Integration of Knowledge and Ideas
LA.WHST.6-8	Writing History, Science and Technical Subjects
6-8.MS-LS1	From Molecules to Organisms: Structures and Processes
6-8.MS-LS1-8	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
6-8.MS-LS1-3	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

Interdisciplinary Connections

RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (

WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Mathematics – MP.2 Reason abstractly and quantitatively.

6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

7.EE.B.4 Use variables to represent quantities in a real-world

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Life and Careers
CRP2. Apply appropriate academic and technical skills.
CRP4. Communicate clearly and effectively and with reason.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP11. Use technology to enhance productivity.

Technology
8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.
8.2.12.D.6 Synthesize data, analyze trends and draw conclusions regarding the effect of a technology on the individual, society, or the environment and publish conclusions.
8.2.8.E.1 Identify ways computers are used that have had an impact across the range of human activity and within different careers where they are used.