Science 8 Unit 3: Human Body 2019

Content Area: **Science**
Course(s): **Life Science 8**
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Enduring Understandings:

- Human body systems work together to defend against disease and injury and to maintain health and wellness.
- Living systems, from the organism to the cellular level, demonstrate the complementary nature of structure and function.
- The degree to which one makes healthy lifestyle choices is directly related to how well the body systems function.
- The human body is made up of complex systems functioning together to maintain homeostasis.
- The life processes of organisms are affected by their interactions with each other and their environment, and may

Essential Questions:

- How do responses to internal and external cues aid in an organism's survival?
- How do the decisions that we make each day influence how efficiently our body's operate?
- How do the different body systems impact and influence one another?
- How does structure relate to function in living systems from the cellular to the organism level?
- What can we do to benefit the health of humans and other organisms?

Lesson Titles:

- Introduction to Circulatory System
- Introduction to Respiratory System
- Vocabulary Building Activities and Online Games
- 3 Types of Muscle Tissue Lab
- Analysis of Digestive System Chart
- Bill Nye DVD for each System
- Blood Transfusion Lab
- Digestive System Length Lab
- Fun and Gross Digestion Lab
- Human Body System Review
- Human Body Systems Test
- Introduction Excretory System
- Introduction to Digestive System

- Introduction to Nervous System
- Introduction to the Muscular System
- Kidney Dialysis Lab
- Lung Capacity Lab
- Model of Lungs Lab
- Optical Illusion Lab
- Parts of Blood
- Parts of Blood Lab
- Path of Blood Flow, and Heart (color and label)
- Pulse Rate Lab
- Pushing the Limits DVD
- Response Rate Lab
- Urine for some fun Lab

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections:

LA.RST.6-8	Reading Science and Technical Subjects
LA.RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
LA.RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
LA.RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
LA.RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
LA.RST.6-8.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
LA.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).
LA.RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
LA.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.
LA.RST.6-8.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
LA.WHST.6-8	Writing History, Science and Technical Subjects
LA.WHST.6-8.1	Write arguments focused on discipline-specific content.
LA.WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- As part of their investigation of how body systems are interrelated, students should use variables to represent two quantities that describe how the inputs or outputs of one system change in relationship to another. They should write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable; analyze the relationship using graphs and tables; and relate these to the equation. For example, students can find the relationship between increased activity of the muscular system and the related increase in the activity of the circulatory or respiratory system and express this relationship as an equation.

- Students will demonstrate their understanding of this concept by writing an argument, supported by evidence, to support an explanation of how the body is a system of interacting subsystems. As part of their preparation for this written argument, students will read science resources and analyze the evidence used to support arguments in these resources. While gathering evidence, it is important that students connect to the nature of science by demonstrating scientific habits. They should be sure to display intellectual honesty by ensuring that whenever they cite specific textual information and quote or paraphrase the data and conclusions of others, they avoid plagiarism and provide basic bibliographic information for sources.

- Students will deepen their understanding of subsystems by gathering and synthesizing information about sensory receptors. Students will understand that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. Each sensory receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. Each response can be examined as a cause-and-effect relationship that can be used to predict response to stimuli in natural systems. Each step in the stimulus/response pathway can be connected to students' previous study of systems and subsystems. For example, the nervous system includes receptors that are subsystems that respond to stimuli by sending messages to the brain.

- The systems of the human body and how they are interdependent upon one another allow people to understand how these systems pertain to all organisms. Ways to maintain a healthy human body need to be addressed as well as causes of specific diseases which can be detrimental to humans. The human body is the most intricate of all organisms and the scientific community has made many strides in helping humans to survive from illness.

- Tutoring during Academic Enrichment

- Using multiple appropriate sources, students will read and synthesize information and will assess the credibility, accuracy, and possible bias of publications and methods used, and describe how the information they read is or is not supported by evidence. For example, students could participate in class discussions in which they can investigate whether information they have read in publications agree with scientific findings or seem to be biased in order to advertise a product or support a position.

- Within this unit, students will use informational text and models to support their understanding that the body is a system of interacting subsystems. Instruction should begin with students understanding that the cell is a specialized structure that is a functioning system. Students will need to understand that different types of cells have different functions; therefore, each cell system is specialized to perform its particular function. Building on this understanding, students learn that different types of cells serve as subsystems for larger systems called tissues. Groups of specialized tissues serve as subsystems for organs that then serve as subsystems for body systems such as the circulatory, excretory, digestive, respiratory,

muscular, and nervous systems. Students need to understand how each body system interacts with other body systems. Emphasis is on the conceptual understanding that each system and subsystem is specialized for particular body functions; it does not include the mechanisms of one body system independent of others.

Modifications

Formative Assessment:

- Pass-out of Class
- Survey Students using Technology (Edmodo, Google Classroom, ect.)
- 3-2-1 Review
- Anticipatory Set
- Closure
- Kahoot (online game)
- Pair / Share
- Review Ball
- Thumps up/down
- Type 1 Writing Prompt (Brainstorm)
- Warm-Up

Alternative Assessments

Performance tasks

Project-based assignments

Problem-based assignments

Presentations

Reflective pieces

Concept maps

Case-based scenarios

Benchmark Assessments

Skills-based assessment

Reading response

Writing prompt

Lab practical

Summative Assessment:

- Alternate Assessment
- Benchmark
- Body Systems Quiz
- Heart Essay
- Human Body Corporation Project
- Human Body Stations Lab
- Human Body Systems Unit Test
- Marking Period Assessment
- Vocabulary Quiz on Systems

Resources & Materials:

- All animal species have some capacity for communication but communication abilities range from very simple to extremely complex, depending upon the species. Communication is influenced by a species' genetic makeup, its environment, and the numerous ways by which animals and humans respond to and adapt to their surroundings http://sciencenetlinks.com/esheets/animal-communication/
- Animal Communications
- NOVA body + brain
- This link will take you to NOVA's homepage for journal articles, videos, and interactives that can be used to teach the body http://www.pbs.org/wgbh/nova/body/