

Unit 2- Systems that Cover, Support, or Move the Body

Content Area: **Science**
Course(s):
Time Period: **Marking Period 1**
Length: **3-4 weeks**
Status: **Published**

Summary

Introduction: This unit will begin the systemic approach to the study of the human body. Unit 2 begins the study of the body by presenting three systems; that covers, support, or moves the body. The three systems responsible for these roles are integumentary, skeletal, and muscular. This unit will include a close inspection of system structure to show how a system's chemicals, cells, tissues, and organs are interwoven to form functional parts; and of system physiology to show the importance of each major component in maintaining our health.

Revision Date: July 2019

Standards

LA.RST.9-10.1	Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.
LA.RST.9-10.2	Determine the central ideas, themes, or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
LA.RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
LA.RST.9-10.4	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 9-10 texts and topics.
LA.RST.9-10.5	Analyze the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).
LA.RST.9-10.6	Determine the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
LA.RST.9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
LA.RST.9-10.8	Determine if the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
LA.RST.9-10.9	Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
LA.RST.9-10.10	By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.

LA.WHST.9-10.1.A	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
LA.WHST.9-10.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
SCI.HS.LS1.A	Structure and Function
SCI.HS.LS1.C	Organization for Matter and Energy Flow in Organisms
SCI.HS-ESS3-2	Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
SCI.HS-LS1-1	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
SCI.HS-LS4-3	Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
SCI.HS-LS1-6	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
SCI.HS-LS4-4	Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
WRK.9.2.12.CAP	Career Awareness and Planning
TECH.9.4.2.CI	Creativity and Innovation
	Assessment does not include identification of specific cell or tissue types, whole body systems, specific protein structures and functions, or the biochemistry of protein synthesis.
	Career planning requires purposeful planning based on research, self-knowledge, and informed choices.
	Systems of specialized cells within organisms help them perform the essential functions of life.
	All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells.

Essential Questions/Enduring Understandings

- How does each system contribute to maintaining homeostasis in the complete organism?
- What is the function/role of each layer of skin?
- What is the function of bone and how does the composition of the tissue help to perform these functions?
- What are the major joints and how do they allow for a range of motion?
- How do the different muscle types contract allowing for voluntary and involuntary actions?

Objectives

- Students will know how to label the layers of the skin.
- Students will know how to label a full adult skeleton.
- Students will know how to label the major muscles in the human body.
- Students will be skilled at classifying bones based on the structure.
- Students will know how each articulation allows for movement.
- Students will be skilled at the concept that the skeletal and muscular system work closely together.

Learning Plan

- Preview the essential questions and connect to the learning throughout the unit
- Define the layers of skin
- Compare the axial and appendicular skeletons.
- Identify types of bone- locations, functions, and examples.
- Class Activity- observe skeleton, identify the 206 bones.
- Identify microscopic components of skeletal muscle.
- Class Activity- Show sliding filament mechanism.
- Create a table comparing and contrasting the three types of muscle.
- Introduce how muscles are named.
- Label major muscles in the body.

Assessment

- label the layers of skin- Formative Assessment
- analyze the function of each layer of skin- Formative Assessment

- determine the difference between the different type of bones-Formative Assessment
- label the bones in the body-Formative Assessment
- draw and label the parts of a long bone-Formative Assessment
- label the major muscles in the body- Summative Assessment
- diagram the sliding filament mechanism-Formative Assessment
- create a flowchart to explain how a muscle contraction- Benchmark
- communicate both orally and in written form the importance of ATP in muscle contraction- Benchmark
- unit test Summative Assessment
- unit quizzes - Formative Assessment
- create concept maps connecting how the systems that cover and support structure rely on one another for homeostasis- Alternative Assessment

Materials

- THE HUMAN BODY-CONCEPTS-book**
- Skeleton Model and Skull Model**
- Brain Model**
- Model of the upper body**
- Model of the digestive system**
- Posters of body systems**

Modifications

https://docs.google.com/spreadsheets/d/1E_I0eIDeaF6WtKTNCenA8E5bPhmPn27MEY8IaxsRoCU/edit?usp=sharing