Unit 1: Organization of the Body

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

Summary

In this introductory unit, students will focus on the study of the human body based on its structure (anatomy) and function (physiology). Students will focus on recognizing the differences among the locations of organs and the mechanisms that exist to help maintain homeostasis of the human body. Directional terms, classification of living tissues based on characteristics, and levels of organization will all be the main focuses of this unit. Students will also be able to classify diseases, describe the four types of tissues, and provide brief descriptions of all eleven body systems.

Revised: July 2024

Essential Questions/Enduring Understandings

Essential Questions

- What is the relationship between the levels of organization in the human body?
- How are directional terms used when describing body regions and organs?
- What is the difference between health and disease?
- What characteristics do all living things share and how do they relate to homeostasis?

Enduring Understandings

- Directional terms utilized to accurately depict the location of organs and regions within the human body.
- some features and characteristics are shared amongst all living things in relation to homeostasis.
- Diseases are classified using various techniques and methods of identification.

Objectives

- Students will be skilled at identifying the different levels of organization within the human body.
- Students will be skilled at using the correct directional term to describe body parts and regions.
- Students will be skilled at identifying diseases.

- Students will know introductory information regarding homeostasis and how the body is impacted by disease.

- Students will know the difference between health and disease.
- Students will know how energy is directed and used by our cells and organs.
- Student will know how specific tissues build upon each other to create organs and their functions.

Learning Plan

- Review classroom procedures and expectations to optimize success
- Preview essential questions and connect to learning throughout the unit
- Establish prior knowledge and understanding before starting the unit
- Create an alphabetized list of prefixes and suffixes used in anatomy and physiology
- Compare and contrast the terms anatomy and physiology and different branches that fall within this field
- Identify the major cavities and organs located within each cavity
- Describe how the human body works as a unit to maintain homeostasis
- Identify how the body adapts to changes in the environment
- Students create a graphic organizer to describe the different types of tissues in the human body
- Develop an understanding of how the eleven body systems function to maintain constant internal conditions
- Discuss the implication of illness and disease on maintaining homeostasis

Assessment

Formative

- Do Now questions
- Small group discussion participation
- Large group discussion participation
- Individual student questions and responses
- Comprehend directional terms and use each term when describing body regions
- Identify the basic functions of each body system
- Define types of tissues in the body
- Identify the basic functions of each body system
- Demonstrate a clear understanding of how the primary organs function in each body system

Summative

- Quizzes on characteristics of life, levels of organization, & directional terms
- Research and present on a disease project
- Unit test

Benchmark

- Final exam

Alternative

- Open note exam
- Project on body organization and homeostasis

Materials

- Hole's Essentials of Human Anatomy and Physiology, High School 2nd Edition by Charles J. Welsh
- Google slides
- Lab materials & models
    - Skeleton model
    - Skull model
    - Brain model
    - Model of the upper body
    - Model of the digestive system
    - Anatomical poster of body systems
- core book list

Standards

L.SS.11–12.1	Demonstrate command of the system and structure of the English language when writing or speaking.
L.KL.11–12.2	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
9.2.12.CAP.4	Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
9.2.12.CAP.5	Assess and modify a personal plan to support current interests and post-secondary plans.
9.2.12.CAP.6	Identify transferable skills in career choices and design alternative career plans based on those skills.
9.2.12.CAP.7	Use online resources to examine licensing, certification, and credentialing requirements at the local, state, and national levels to maintain compliance with industry requirements in areas of career interest.
9.2.12.CAP.8	Determine job entrance criteria (e.g., education credentials, math/writing/reading comprehension tests, drug tests) used by employers in various industry sectors.
9.1.12.FP	Financial Psychology
	Biological behavioral biases, psychology, and unconscious beliefs affect financial decision-making.
	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. Emphasis is on functions at the organism system level such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.
LS1.A	Structure and Function Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.
LS1.C	Organization for Matter and Energy Flow in Organisms The sugar molecules thus formed contain carbon, hydrogen, and oxygen: their hydrocarbon backbones are used to make amino acids and other carbon-based molecules that can be assembled into larger molecules (such as proteins or DNA), used for example to form new cells. As matter and energy flow through different organizational levels of living systems, chemical elements are recombined in different ways to form different products.
LS4.D	Biodiversity and Humans Humans depend on the living world for the resources and other benefits provided by biodiversity. But human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat destruction, pollution, introduction of invasive species, and climate change. Thus sustaining biodiversity so that ecosystem functioning and productivity are maintained is essential to supporting and enhancing life on Earth. Sustaining biodiversity also aids humanity by preserving landscapes of recreational or inspirational value.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
ETS1.B	Developing Possible Solutions

Integrated Accommodations and Modifications

https://docs.google.com/spreadsheets/d/11cEQxerWEHQEjIbnMkdf8AsemQLmsrMS6VdGmBFYliU/edit?usp=sharing