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

This unit focuses on a systematic approach to the study of the human body. Three broad systems that cover, support, and move the human body are the focus for this unit. The integumentary system is responsible for the role of cover while the skeletal and muscular systems are responsible for support and move respectively. A close inspection of each of these systems will show how a system's chemicals, cells, tissues, and organs are interwoven to form functional parts. These systems work in tandem to create a functioning physiological system with each major component essential to maintaining our health.

Revised: July 2024

Essential Questions/Enduring Understandings

Essential Questions

- How does each system contribute to maintaining homeostasis for the organism as a whole?
- What is the function and role of each layer of skin?
- What is the function of bone and how does the composition of tissue help 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 to allow for voluntary and involuntary actions?

Essential Understandings

- Unique systems are interdependent to create a fully functional body system.
- The key features and facets of each system allow them to function both independently and together to optimize human body features and functioning.

Objectives

- Students will be skilled at identifying and labeling the different layers that comprise the skin.
- Students will be skilled at classifying bones based on structure.
- Students will be skilled at understanding and communicating the concept that the skeletal and muscular system work closely together.

- Students will know how to label a full adult skeleton.
- Students will know how to identify key bones and muscles.
- Students will know how to label the major muscles in the human body.
- Students will know how each articulation allows for movement.

Learning Plan

- Preview the essential questions and connect to the learning throughout the unit.
- Introduction to the unit via direct instruction using Google slides and infographics.
- Beginning with the integumentary system, identify and define the different layers of the skin.
- For the skeletal system, compare the axial and appendicular skeletons
- Differentiate and identify types of bone
    - Locations, functions, and examples
- Class activity: observe the skeleton, identify the 206 bones
- Identify microscopic components of skeletal muscle
- Class activity: show the sliding filament mechanism of muscle contraction
- Create a table comparing and contrasting the three types of muscle
- Introduce the naming system for muscles
- Label major muscles in the body and discuss functions

Assessment

Formative

- Do Now questions
- Small group discussion participation
- Large group discussion participation
- Individual student questions and responses
- Independent tasks
- Label the layers of the skin & discuss functions of each
- Determine the differences between different types of bones
- Identify and label the bones
    - Draw and label a long bone
- Label major muscles
    - Diagram sliding filament mechanism

Summative

- Quizzes on major skeletal bones, muscle groups, and muscle contraction (sliding filament & ATP)
- Unit test

Benchmark

- Final exam

Alternative

- Open note exam
- Create concept maps connecting the systems that cover and support & how they rely on one another for 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

Integrated Accommodations and Modifications

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