

Unit 3- Systems that Control by Communication

Content Area: **Science**
Course(s):
Time Period: **Marking Period 2**
Length: **3-4 weeks**
Status: **Published**

Summary

Introduction: Two systems that control body activities by way of communication, the nervous and endocrine systems, are grouped together in this unit. The nervous system provides control and coordination by way of rapid nerve impulses. The endocrine system controls cell activities by the release of chemicals that must circulate through the bloodstream. Both of these systems play a role in responding to changes in the environment; a characteristic of life called excitability.

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.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.
PFL.9.1.2.CR	Civic Responsibility
SCI.HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.
SCI.HS-LS3-1	Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
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-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
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.
WRK.9.2.12.CAP	Career Awareness and Planning
WRK.9.2.12.CAP.6	Identify transferable skills in career choices and design alternative career plans based on those skills.
TECH.9.4.2.CI	Creativity and Innovation
TECH.9.4.2.CT	Critical Thinking and Problem-solving
	Range of Reading and Level of Text Complexity
	There are ways to assess a business's feasibility and risk and to align it with an individual's financial goals.

Essential Questions

- How does each system contribute to maintaining homeostasis in the complete organism?
- What is the physiology of a nerve impulse?
- How do the nervous system and endocrine system work together to allow the body to respond?
- How are target cells affected by hormones?

Objectives

- Students will know the three different neurons based on structure.
- Students will know the difference between afferent and efferent.
 - Students will know how an impulse travels from one neuron to another and how myelin affects the speed.
 - Students will be skilled at determining if a response is somatic or autonomic.

- Students will be able to classify the types of hormones and how they enter a cell.
- Students will be skilled at identifying hormones and which gland is responsible for secreting.
- Students will know how the endocrine and nervous system allows for physiological changes in the body.

Learning Plan

- Preview the essential questions and connect to the learning throughout the unit.
- Discuss how the nervous system receives, sends, and interprets messages
- Produce a chart describing the different types of neurons based on structure and function
- Explain how a nerve impulse travels
- Identify the organs and function of the peripheral nervous system.
- Discuss different neurological disorders and how they affect the body systems
- Distinguish between exocrine and endocrine glands.
- Describe the types of hormones
- Distinguish the difference between positive and negative feedback.
- Describe the location and structure of the primary endocrine glands.
- Identify the hormones produced by each gland and describe their effects.

Assessment

- examine the differences between neurons- Benchmark
- create a flow chart indicating the physiology behind a nerve impulse-Formative Assessment
- label the parts of a multipolar neuron-Formative Assessment
- Identify and describe the parts of the brain- Summative Assessment
- research a neurological disorder and create a power point presentation- Formative Assessment
- perform a response lab to demonstrate how the body reacts to a stimulus- Summative Assessment
- identify the primary endocrine glands-Formative Assessment
- communicate the hormones that are produced by each gland and describe their effects- Benchmark

- unit test Summative Assessment
- unit quiz - Formative Assessment
- research project on system that communicates with the outside world- 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