

Unit 4 Systems that Transport and Protect

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

Summary

Introduction: This unit will examine the generalized systems that provide transportation and protection. Materials must be transported to and from the interstitial fluid for the needs of the cell to be met. This transportation function is accomplished by the movement of blood through the cardiovascular system. The function of protection is closely associated with transportation as elements in the blood which work with another system, the lymphatic system, to defend the body from many forms of disease. These two systems of tubes allow the body to receive nutrients and fight off pathogens.

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.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-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
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-LS1-7	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-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-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-LS1-6	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.
WRK.9.2.12.CAP	Career Awareness and Planning
TECH.9.4.2.CT	Critical Thinking and Problem-solving
	Integration of Knowledge and Ideas
	Range of Reading and Level of Text Complexity
	Craft and Structure
	Brainstorming can create new, innovative ideas.

Essential Questions

- How do these systems of tubes propel or transport materials throughout the body?
- How do the living cells found within the blood and lymph help to maintain homeostasis?
- What are the living components of blood and how are they created/ related to other body systems?
- How does the lymphatic system change throughout our lifespan?
- What is the role of each organ in the cardiovascular and lymphatic system?

Objectives

- Students will know the three living cells in the blood.
- Students will know how cells can transport between the blood and lymph vessels.
- Students will know how the thymus changes as we get older and how this directly relates to our immune system.
- Students will be skilled at the muscle contraction of hollow organs and tubes.
- Students will know the link between the lymphatic system and bone marrow.

Learning Plan

- Preview the essential questions and connect to the learning throughout the unit.
- Discuss the elements found in blood and identify their roles.
- Differentiate between the different types of blood - ABO and Rh factor.
- Trace the flow of blood through the heart.
- Define cardiac output.
- Explain how the sounds of the heart relate to its function.
- Identify major blood vessels and their roles in the cardiovascular system
- Describe the pathway of lymph by identifying the structures it passes through
- Identify the organs of the lymphatic system.
- Describe the types of acquired immunity.

Assessment

- observe specimens under the microscope of different formed elements found in blood- Benchmark
- draw and label the parts of the heart- Summative Assessment
- identify the different types of blood vessels- Summative Assessment
- communicate the flow of blood through the heart and vessels- Formative Assessment
- design a Venn diagram comparing the cardiovascular and lymphatic systems- Summative Assessment
- communicate both orally and in written form how lymph flows in one direction protecting the body from pathogens- Benchmark
- identify the organs of lymphatic system- Formative Assessment
- create a movie / play that shows how fluids, cells, materials transport throughout the body- 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