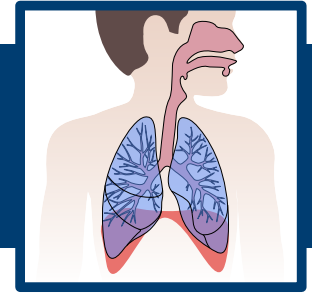


## Education Standards

### PULMO PARK

### LESSON 1: MAPPING PULMO PARK

#### Activity 1C: Poster Presentation



TEXAS BIOMEDICAL  
RESEARCH INSTITUTE  
HEALTH STARTS WITH SCIENCE

**NEXT GENERATION SCIENCE STANDARDS (NGSS)**  
**TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS)**

## ACTIVITY 1C: POSTER PRESENTATION | TEKS

### High School | Biology

**(4)** Scientific inquiry: Scientific inquiry is the planned and deliberate investigation of the natural world using scientific and engineering practices. Scientific methods of investigation are descriptive, comparative, or experimental. The method chosen should be appropriate to the question being asked. Student learning for different types of investigations include descriptive investigations, which involve collecting data and recording observations without making comparisons; comparative investigations, which involve collecting data with variables that are manipulated to compare results; and experimental investigations, which involve processes similar to comparative investigations but in which a control is identified.

**(A)** Scientific practices. Students should be able to ask questions, plan and conduct investigations to answer questions, and explain phenomena using appropriate tools and models.

**(5)** Science concepts – biological structures, functions, and processes. The student knows that biological structures at multiple levels of organization perform specific functions and processes that affect life. The student is expected to:

**(A)** relate the functions of different types of biomolecules, including carbohydrates, lipids, proteins, and nucleic acids, to the structure and function of a cell

**(6)** Science concepts – biological structures, functions, and processes. The student knows how an organism grows and the importance of cell differentiation. The student is expected to:

**(B)** explain the process of cell specialization through cell differentiation, including the role of environmental factors

**(12)** Science concepts – biological structures, functions, and processes. The student knows that multicellular organisms are composed of multiple systems that interact to perform complex functions. The student is expected to:

**(A)** analyze the interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals

### High School | Principles of Health Science

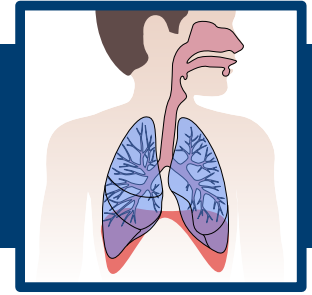
**(2)** The student applies mathematics, science, English language arts and social studies in health science. The student is expected to:

**(A)** convert units between systems of measurement;

### PULMO PARK

#### LESSON 1: MAPPING PULMO PARK

##### *Activity 1C: Poster Presentation*



- (B) apply data from tables, charts, and graphs to provide solutions to health-related problems;
- (C) interpret technical material related to the health science industry;
- (D) organize, compile, and write ideas into reports and summaries;
- (E) plan and prepare effective oral presentations;
- (F) formulate responses using precise language to communicate ideas;
- (G) describe biological and chemical processes that maintain homeostasis;
- (H) identify and analyze principles of body mechanics and movement such as forces and the effects of movement, torque, tension, and elasticity on the human body;
- (K) identify the concepts of health and wellness throughout the life span

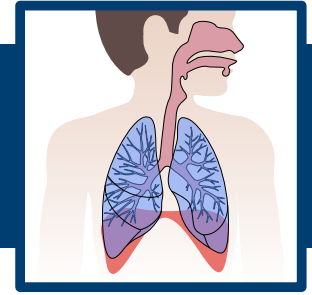
#### High School | Anatomy & Physiology

- (7) The student examines the body processes that maintain homeostasis. The student is expected to:
  - (A) investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive transport, active transport, and biofeedback, that contribute to homeostasis; and
  - (B) determine the consequences of the failure to maintain homeostasis.
- (9) The student explores the body's transport systems. The student is expected to:
  - (A) analyze the physical, chemical, and biological properties of transport systems, including circulatory, respiratory, and excretory;
  - (B) determine the factors that alter the normal functions of transport systems; and
  - (C) contrast the interactions among the transport systems.
- (10) The student investigates environmental factors that affect the human body. The student is expected to:
  - (A) identify the effects of environmental factors such as climate, pollution, radioactivity, chemicals, electromagnetic fields, pathogens, carcinogens, and drugs on body systems; and
  - (B) explore measures to minimize harmful environmental factors on body systems.
- (11) The student investigates the structure and function of the human body. The student is expected to:
  - (A) analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, muscular, cardiovascular, respiratory, digestive, urinary, immune, endocrine, and reproductive systems;
  - (B) evaluate the cause and effect of disease, trauma, and congenital defects on the structure and function of cells, tissues, organs, and systems;
  - (C) research technological advances and limitations in the treatment of system disorders

# PULMO PARK

## LESSON 1: MAPPING PULMO PARK

### Activity 1C: Poster Presentation



### High School | Pathophysiology

- (7) The student examines a variety of human diseases. The student is expected to:
- (A) describe the nature of diseases, including the etiology, signs and symptoms, diagnosis, prognosis, and treatment options for diseases;
  - (B) explore advanced technologies for the diagnosis and treatment of disease;
  - (C) examine reemergence of diseases such as malaria, tuberculosis, and polio;
  - (D) differentiate between hospital-acquired infections and community-acquired infections;
  - (E) examine antibiotic-resistant diseases such as methicillin resistant *Staphylococcus aureus*;
  - (F) differentiate between congenital disorders and childhood diseases; and
  - (G) investigate ways diseases affect multiple body systems.
- (8) The student integrates the effects of disease prevention and control. The student is expected to:
- (A) evaluate public health issues related to asepsis, isolation, immunization, and quarantine;
  - (B) analyze the effects of stress and aging on the body;
  - (C) evaluate treatment options for diseases;
  - (D) investigate diseases that threaten world health and propose intervention strategies

## ACTIVITY 1C: POSTER PRESENTATION | NGSS

### Middle School | (MS-LS1-3)

**Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.**

**Clarification Statement:** *Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of those systems.*

**Assessment Boundary:** *Assessment does not include the mechanism of one body system independent of others. Assessment is limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems.*

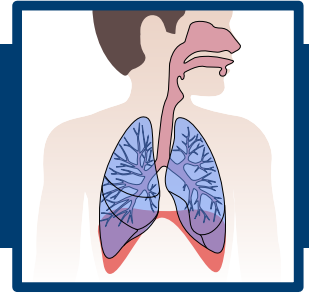
[NGSS: Observable Features of Student Performance \[Link\]](#)

## Education Standards

# PULMO PARK

## LESSON 1: MAPPING PULMO PARK

### *Activity 1C: Poster Presentation*



### High School | (HS-LS1-3)

**Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.**

**Clarification Statement:** *Examples of investigations could include heart rate response to exercise, stomate response to moisture and temperature, and root development in response to water levels.*

**Assessment Boundary:** *Assessment does not include the cellular processes involved in the feedback mechanism.*

[Observable Features of Student Performance \[Link\]](#)