



# SCHOOL DISTRICT OF THE CHATHAMS CURRICULUM PROFILE TEMPLATE



**CONTENT AREA(S): Science**

**COURSE/GRADE LEVEL(S): Anatomy & Physiology**

## **I. Course Overview**

This course is designed to explore the anatomy and physiology of the human body. In order to understand how the human body works, it must be broken down into systems that accomplish specific tasks. The course begins with a brief study of the cells and tissues that make up each system and then turns its focus to how each system carries out a function essential to the survival of the individual. The semester concludes with discussions of how all of the systems work together. Students complete extensive laboratory work, including a systematic mammalian dissection.

## **II. Units of Study**

Unit I: An Overview of the Human Body

Unit II: Introduction to the Histology and Dissection

Unit III: The Digestive System and Metabolism (Form and Function)

Unit IV: Blood and the Cardiovascular System (Form and Function)

Unit V: The Respiratory System (Form and Function)

Unit VI: The Urinary System and Reproductive Systems (Form and Function)

Unit VII: The Nervous System (Form and Function)

## **III. Essential Questions** (The open-ended, provocative questions that help frame inquiry)

### **Unit I: An Overview of the Human Body**

- What life functions must all living things, including human carry out in order to survive?
- How does the division of labor (cell→tissue→organ→system) help carry out life functions?
- How do the four major tissue types differ structurally and functionally?

### **Unit II: Introduction to the Histology and Dissection**

- What are the proper techniques associated with the dissection of a fetal pig?
- How do you keep a formal lab research notebook?
- What is the proper procedure for using the compound light microscope?

### **Unit III: The Digestive System and Metabolism**

- Why is the digestive system essential to the human body?
- How do humans break down food into particles which can then be distributed to individual cells for energy use?
- What is the interrelationship between the digestive system and the other systems of the body?



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## **Unit IV: Blood and the Cardiovascular System**

- Why is the cardiovascular system and blood essential to the body?
- How does the cardiovascular system transport essential gases, nutrients and wastes throughout the body?
- What is the interrelationship between the cardiovascular system, blood and the other various organ systems of the body?

## **Unit V: The Respiratory System**

- Why is the respiratory system essential to the human body?
- How do humans ensure all cells have a fresh supply of oxygen and are able to eliminate carbon dioxide waste?
- What is the interrelationship between the respiratory system and the other organ systems of the body?

## **Unit VI: The Urinary System and Reproductive Systems**

- How does an animal eliminate nitrogenous wastes from the body?
- What is the interrelationship between urinary system and the other systems of the body?
- How does an animal reproduce sexually?
- What is the interrelationship between the reproductive system (male/female) and the other systems of the body?

## **Unit VII: The Nervous System and Special Senses**

- How does the central nervous system coordinate all of our movements?
- How does the brain provide humans the ability to think and reason?
- What is the interrelationship between the nervous system and the other systems of the body?

## **IV. Learning Objectives**

### NJCCCS:

Science Practices: 5.1 A—D

Life Science: 5.2 A, B, D and E

21<sup>st</sup> Century Life and Careers: 5.9 A—C

### CCSS:

RST.11-12.1-10 Literacy in History/Social Studies, Science & Technical Subjects

## **V. Instructional Materials**

### **Texts:**

Marieb, Elaine N. (2006). *Essentials of Human Anatomy & Physiology*, Eighth Edition. San Francisco, CA: Pearson Education-Benjamin Cummings.

Marieb, Elaine N. (2006). *Essentials of Human Anatomy & Physiology Laboratory Manual*, Third Edition. San Francisco, CA: Pearson Education-Benjamin-Cummings.

Bohensky, Fred. (1978). *Photo Manual and Dissection Guide of the Fetal Pig*. Wayne, NJ: Avery Publishing Group, Inc.



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## **Supplemental Materials:**

Biology Textbooks

Internet Resources (webquests, tutorials, animations and simulations)

Current Events Magazines and News Papers

Assorted Videos and Software programs available through CHS collection

## **VI. Key Performance and Benchmark Tasks**

### **Unit I: An Orientation to the Human Body**

- Identify the levels of structural organization of the human body
- Identify all the organ systems of the human body and their functions

### **Unit II: Introduction to the Histology and Dissection**

- Identify and describe the external structures of the fetal pig
- Identify and describe the organs of the internal viscera of the fetal pig

### **Unit III: The Digestive System**

- Identify and describe the organs of the digestive system (via fetal pig dissection and microscopic observation)
- Observe and determine the optimal environmental conditions for which various enzymes of the digestive system work.
- Identify homeostatic relationships between the digestive system and other body systems.

### **Unit IV: Blood and the Cardiovascular System**

- Identify and describe the parts of the heart and the major blood vessels of the circulatory system (via fetal pig dissection and microscopic observation).
- Correctly take the blood pressure of an individual.
- Identify homeostatic relationships between the blood and the various organ systems of the body.

### **Unit V: The Respiratory System**

- Identify and describe the parts of the respiratory system (via fetal pig dissection and microscopic observation).
- Identify homeostatic relationships between the respiratory system and other body systems.

### **Unit VI: The Urinary System and Reproductive Systems**

- Identify the different structures of the both the urinary system and male and female reproductive systems (via fetal pig dissection and microscopic observation).
- Identify homeostatic relationships between the urinary system and other body systems.
- Identify homeostatic relationships between the reproductive system (male/female) and other body systems.

### **Unit VII: The Nervous System and Special Senses**

- Identify the different structures of the brain and eye in the nervous system (via fetal pig dissection and microscopic observation).
- Identify homeostatic relationships between the nervous system and other body systems.