

**URBANDALE COMMUNITY SCHOOL DISTRICT
CURRICULUM FRAMEWORK OUTLINE**

SUBJECT:	Science	
COURSE TITLE:	Human Anatomy and Physiology	
GRADE LEVEL:		2 Credits
PREREQUISITES:	C or better in Biology and C or better in Chemistry, or teacher approval	

COURSE DESCRIPTION:

Human Anatomy and Physiology is a year long course taught to prepare students for college level medical and/or anatomy courses. During this class, students will study the structure and function of the body systems systemically. Students will start the class by reviewing basic biology knowledge, as well as learning important vocabulary and terminology used by the scientific community. A fundamental understanding of chemistry concepts is important to a student's success in this class. The following body systems will be taught during first semester: integumentary, skeletal, muscular, and nervous systems. Second semester will focus on the study of the endocrine, circulatory, respiratory, digestive, urinary, and immune body systems.

CONTENT STANDARDS:

In order that our students may achieve the maximum benefit from their talents and abilities, the students of Urbandale Community School District's Anatomy and Physiology should be able to . . .

- Content Standard I:** **Understand and apply the concepts of life science.**
Benchmarks: Infer the importance of biology to the study of Anatomy and Physiology.
 Describe the events, both macroscopic and microscopic, that create body movement.
 Describe the events, both macroscopic and microscopic, that allow communication between body cells and/or systems.
 Describe the events, both macroscopic and microscopic, that are involved in metabolism of food and excretion of waste products.
 Describe the events, both macroscopic and microscopic, that create an immune response by our body.
- Content Standard II:** **Understand and apply the concepts of earth and space science.**
Not addressed in this course.
- Content Standard III:** **Understand and apply the concepts of physical science.**
Not addressed in this course.
- Content Standard IV:** **Understand and apply the concepts of health science.**
Benchmarks: Justify that diseases and disorders impact the normal functioning of body systems, resulting in symptoms related to those body systems.
 Recognize the importance of a healthy lifestyle on the performance of the various body systems.
- Content Standard V:** **Understand and apply the scientific method.**
Benchmarks: Hypothesize and develop experiments to test those hypotheses.
 Communicate their experimental data and analysis.



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**CONTENT STANDARDS COURSE BENCHMARKS WITH INDICATORS FOR
ANATOMY AND PHYSIOLOGY**

Standard I: Understand and apply the concepts of life science. The students in Anatomy and Physiology should be able to...

Benchmark: Infer the importance of biology to the study of Anatomy and Physiology.

Indicators: Categorize life according to the proper organizational levels: chemistry, organelles, cell, tissues, organ, organ systems, organism. (A)
Use correct terminology when discussing body cavities, directions, and views of organisms. (A)
Generalize tissue locations and functions in relationship to their structure. (A)

Assessments: District Assessment
Unit objective test
Concept map creation
Short answer test
Polka dot activity

Benchmark: Describe the events, both macroscopic and microscopic, that create body movement.

Indicators: Know the anatomy of a long bone and osteon. (A)
Correlate muscle name with the action the muscle creates and the bones it is attached to. (A)
Diagram a muscle fiber and the parts involved in creating a contraction. (A)

Assessments: District Assessment
Bone lab practical
String muscle model
Muscle lab practical
Skeletal unite objective test
Muscle unite objective test
Short answer test

Benchmark: Describe the events, both macroscopic and microscopic, that allow



communication between body cells and/or systems.

Indicators: Justify the creation of an impulse, similar to electricity, within nerves. (D)
Diagram the synapse between two nerves and explain the passing of an impulse from one nerve to the next. (A)
Induce the mechanism a hormone uses based on its type, either protein or lipid. (A)
Defend that nervous system communication is faster, while endocrine communication creates more widespread body response to a signal. (A)

Assessments: District Assessment
Senses lab activity
Nervous unit objective test
Short answer test
Brain lab practical
Endocrine test (objective and essay)

Benchmark: Describe the events, both macroscopic and microscopic, that are involved in metabolism of food and excretion of waste products.

Indicators: Know the pathway of the blood and its importance in transporting gases, hormones, and other molecules throughout the body. (A)
Explain the importance of a moist membrane for gas exchange, especially within the alveoli and capillaries. (A)
Diagram the journey our food takes from entry to exit of the body. (A)
Correlate the creation of urine with the regulation of blood pressure of the body. (A)

Assessments: District Assessment
Digestive unit test (objective and essay)
Urinary unit test (objective and essay)

Benchmark: Describe the events, both macroscopic and microscopic, that create an immune response by our body.

Indicators: Know the body cells responsible for fighting foreign particles. (A)
Diagram the steps our body takes to fight disease, from the initial recognition of a foreign particle to the creation of a memory of the disease. (A)

Assessments: District Assessment
Immune test (objective and essay)
Pathogen comparison chart
Article analysis questions

Standard II: Understand and apply the concepts of earth and space science.



Not addressed in this course.

Standard III: Understand and apply the concepts of physical science.

Not addressed in this course.

Standard IV: Understand and apply the concepts of health science. The students in Anatomy and Physiology should be able to...

Benchmark: Justify that diseases and disorders impact the normal functioning of body systems, resulting in symptoms related to those body systems.

Indicators: Identify mechanism or cause of a disease or disorder through research. (D)
Relate that research to their knowledge of the body system to create an explanation of the symptoms of the disease or disorder. (D)

Assessments: District Assessment
Projects (posters, brochures, etc.)
Endocrine power points

Benchmark: Recognize the importance of a healthy lifestyle on the performance of the various body systems.

Indicators: Correlate the use of muscle groups to the body's manufacturing of more mitochondria and fibers within those muscle tissues. (D)
Apply their knowledge of the immune system to better understand vaccines and antibiotics given to treat or prevent disease. (A)

Assessments: District Assessment
Muscle unit test (objective)
Muscle quiz
Vaccine questionnaire
Immune test

Standard V: Understand and apply the scientific method. The students in Anatomy and Physiology should be able to...

Benchmark: Hypothesize and develop experiments to test those hypotheses.

Indicators: Design procedures to test a hypothesis for a given science problem. (A)
Perform laboratory experiments safely and accurately. (A)

Assessments: District Assessment
Lab planning sheets
Teacher observation of lab work



Benchmark: Communicate their experimental data and analysis.

Indicators: Construct a laboratory report following the correct scientific format. (D)
Conclude if the hypothesis was correct and explain referencing data. (A)
Assess the quality of the procedure and results of the experiment. (A)

Assessments: District Assessment
Lab report with rubric

No student enrolled in the Urbandale Community School District shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination in the District's programs on the basis of race, color, creed, sex, religion, marital status, ethnic background, national origin, disability, sexual orientation, gender identity, or socio-economic background. The policy of the District shall be to provide educational programs and opportunities for students as needed on the basis of individual interests, values, abilities and potential.

