

## Physiology Standards and Benchmarks

### Standard 1: Understands and applies principles of scientific inquiry

*Concepts: Scientific Reasoning, Conducting Scientific Investigations, Safety*

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
A. Formulates and revises scientific explanations and models	<ul style="list-style-type: none"> <li>• scientific explanation</li> <li>• scientific model</li> <li>• data</li> <li>• within tolerance</li> <li>• scientific method</li> </ul>	<ul style="list-style-type: none"> <li>• Knows scientific explanations and models are based on data</li> <li>• Know new data may lead to the modification of scientific explanations and models</li> </ul>	<ul style="list-style-type: none"> <li>• Analyzes data with respect to scientific explanations and models</li> <li>• Adjusts scientific explanations and models based on data</li> </ul>	Physiology Curriculum Guide  Emphasized throughout the entire curriculum
B. Understands how scientific knowledge changes with new evidence	<ul style="list-style-type: none"> <li>• scientific knowledge</li> <li>• evidence</li> <li>• influence</li> <li>• ethics</li> </ul>	<ul style="list-style-type: none"> <li>• Knows examples of scientific knowledge that changed when new evidence was presented</li> <li>• Knows that science is an ongoing process and is always open to new ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Describes how physiology concepts have evolved with the discovery of new evidence</li> <li>• Hypothesizes how current zoology concepts and practices will influence future societies</li> </ul>	
C. Uses technology and mathematics to perform accurate scientific investigations and communications	<ul style="list-style-type: none"> <li>• technology</li> <li>• mathematics</li> <li>• probability</li> <li>• ratio</li> <li>• accuracy</li> <li>• scientific investigations</li> <li>• scientific communication</li> </ul>	<ul style="list-style-type: none"> <li>• Knows how technology can help scientific investigations and communications</li> <li>• Knows mathematical computations and formulas are essential to scientific investigations</li> </ul>	<ul style="list-style-type: none"> <li>• Determines technologies most appropriate to use given a particular situation</li> <li>• Uses the necessary mathematics for a particular situation</li> <li>• Calculates results with a given degree of accuracy</li> </ul>	
D. Demonstrates safe handling procedures	<ul style="list-style-type: none"> <li>• OSHA</li> <li>• EPA</li> <li>• MSDS</li> <li>• Right to Know</li> <li>• hazardous</li> <li>• safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Knows appropriate safety procedures for a given situation</li> <li>• Knows where safety devices are located in the classroom</li> <li>• Understands the process of waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Follows required safety procedures</li> <li>• Recognizes, reports, and corrects safety problems</li> <li>• Follows waste disposal procedures</li> </ul>	

## Physiology Standards and Benchmarks

### Standard 2: Understands and applies principles of life science

*Concepts: Describes the structure and function of cells, organs, and systems in the human body.*

Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the relationship between form and function of human body systems  <b>- Organization of the Body</b></p>	<p><b>Organization of the Body</b></p> <ul style="list-style-type: none"> <li>• anatomy</li> <li>• physiology</li> <li>• homeostasis</li> <li>• anatomical position</li> <li>• directional terms</li> <li>• planes</li> </ul>	<p><b>Organization of the Body</b></p> <ul style="list-style-type: none"> <li>• Knows the study of the human body is divided into two areas: anatomy and physiology</li> <li>• Knows there is a language to describe the location of a body structure relative to the another</li> <li>• Knows the human body is organized by a series of building-block components</li> <li>• Knows the body as a whole must maintain a relatively stable internal environment despite fluctuations in the external environment</li> <li>• Understands health and disease are relative terms</li> </ul>	<p><b>Organization of the Body</b></p> <ul style="list-style-type: none"> <li>• Distinguishes between anatomy and physiology and describes the divisions of anatomy</li> <li>• Uses examples to identify the directional terms and body planes</li> <li>• Describes the six levels of structural organization</li> <li>• Defines homeostasis and describes its importance to survival</li> <li>• Describes the four categories of human disease</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>

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Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the relationship between form and function of human body systems (con't)</p> <p>- <b>Systems that Support or Move the Body</b></p>	<p><b>Systems that Support or Move the Body</b></p> <ul style="list-style-type: none"> <li>• skeletal system</li> <li>• tissue</li> <li>• bone</li> <li>• joint</li> <li>• muscular system</li> <li>• contraction</li> <li>• origin</li> <li>• insertion</li> </ul>	<p><b>Systems that Support or Move the Body</b></p> <ul style="list-style-type: none"> <li>• Knows the skeletal system performs five major functions</li> <li>• Knows bones are continuous recycling</li> <li>• Knows muscle is composed of skeletal muscle tissue, connective tissue, and nerve tissue</li> <li>• Knows muscle tissue consists of specialized cells that shorten</li> </ul>	<p><b>Systems that Support or Move the Body</b></p> <ul style="list-style-type: none"> <li>• Describes how bone grows and reforms after a fracture or break</li> <li>• Defines the criteria used to classify joints structurally and functionally</li> <li>• Describes the structure and function of the three types of muscle tissue</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>

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Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the relationship between form and function of human body systems (con't)</p> <p>- <b>Systems that Control Communication</b></p>	<p><b>Systems that Control Communication</b></p> <ul style="list-style-type: none"> <li>• nervous system</li> <li>• neurons</li> <li>• fibers</li> <li>• synapse</li> <li>• sensory</li> <li>• sensation</li> <li>• sensory receptors</li> </ul>	<p><b>Systems that Control Communication</b></p> <ul style="list-style-type: none"> <li>• Knows the nervous system is the control center and communication network of the body</li> </ul>	<p><b>Systems that Control Communication</b></p> <ul style="list-style-type: none"> <li>• Identifies how the nervous system mediates communication between the different parts of the body and interactions with the environment</li> <li>• Draws a brain map to identify the various brain structures</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>

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Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the relationship between form and function of human body systems (con't)</p> <p style="text-align: center;"><b>- Systems that Transport</b></p>	<p><b>Systems that Transport</b></p> <ul style="list-style-type: none"> <li>• blood system</li> <li>• cardiovascular system</li> </ul>	<p><b>Systems that Transport</b></p> <ul style="list-style-type: none"> <li>• Knows blood is a type of connective tissue and is classified as part of the circulatory system</li> <li>• Knows blood typing is based on the presence of proteins</li> </ul>	<p><b>Systems that Transport</b></p> <ul style="list-style-type: none"> <li>• Describes the composition and physical characteristics of blood</li> <li>• Distinguishes between the formed elements on the basis of their concentrations in blood, their structure, and their major function</li> <li>• Identifies the importance of blood typing in performing blood transfusions</li> <li>• Describes the structure and function of the heart</li> <li>• Traces the flow of blood through the chambers of the heart</li> <li>• Distinguishes between the types of blood vessels on the basis of their structure and function</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>

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Course Level Benchmarks	Vocabulary	Knowledge	Skills	Classroom Resources
<p>A. Analyzes the relationship between form and function of human body systems (con't)</p> <ul style="list-style-type: none"> <li>- <b>Metabolic Processing Systems</b></li> </ul>	<p><b>Metabolic Processing Systems</b></p> <ul style="list-style-type: none"> <li>• respiratory system</li> <li>• respiration</li> <li>• inspiration</li> <li>• expiration</li> <li>• digestive system</li> <li>• digestion</li> <li>• secretion</li> </ul>	<p><b>Metabolic Processing Systems</b></p> <ul style="list-style-type: none"> <li>• Knows the respiratory system helps meet the metabolic needs of the body</li> <li>• Understands the difference between respiration and cellular respiration</li> <li>• Knows the organs of the digestive system are organized to maximize the efficiency of reducing foods to smaller particles</li> </ul>	<p><b>Metabolic Processing Systems</b></p> <ul style="list-style-type: none"> <li>• Identifies the organs of the respiratory system on the basis of their location, structure, and functions</li> <li>• Describes the events involved in inspiration and expiration</li> <li>• Explains how cellular energy demands relate to respiration rate</li> <li>• Identifies the two divisions of the digestive system</li> <li>• Defines the six processes of digestion</li> <li>• Describes the structures and functions with the digestive system</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>

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<p>A. Analyzes the relationship between form and function of human body systems (con't)</p> <p>- <b>The Cycle of Life</b></p>	<p><b>The Cycle of Life</b></p> <ul style="list-style-type: none"> <li>• reproductive system</li> <li>• neural mechanisms</li> <li>• hormonal mechanisms</li> <li>• development</li> <li>• prenatal period</li> <li>• postnatal period</li> </ul>	<p><b>The Cycle of Life</b></p> <ul style="list-style-type: none"> <li>• Knows the reproductive system is the only system that is not directly involved in maintaining internal homeostasis</li> <li>• Knows the reproductive system's overall function is the production of offspring</li> <li>• Knows human development is a continuous process of body change that begins at fertilization and continues until death</li> </ul>	<p><b>The Cycle of Life</b></p> <ul style="list-style-type: none"> <li>• Identifies the organs of the male system on the basis of their structure and functions</li> <li>• Describes the neural and hormonal mechanisms that influence male reproduction</li> <li>• Identifies the organs of the female system on the basis of their structure and functions</li> <li>• Distinguishes between the prenatal and postnatal periods of development</li> <li>• Describes the process of fertilization and the changes it induces</li> <li>• Identifies the main events during the fetal period of development</li> </ul>	<p>Physiology Curriculum Guide</p> <p>United Streaming Video</p>