



STANDARDS	PAGE REFERENCES
INQUIRY	
1. Apply inquiry-based and problem-solving processes and skills to scientific investigations.	
<p>a. Use current technologies such as CD-ROM, DVD, Internet, and on-line data search to explore current research related to a specific topic. (DOK 3)</p>	<p>Student Edition: <i>AP R 21</i> <i>Web Connections 21</i> Can also be incorporated into <i>Clinical Connection</i>, <i>Topic of Interest</i>, and <i>Genetics Connection</i> features: <i>Clinical Connection 89, 126, 206, 255, 373</i> <i>Genetics Connection 191, 562-563</i> <i>Topic of Interest 90-91, 103, 121, 186, 245, 354</i></p>
<p>b. Clarify research questions and design laboratory investigations. (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual—Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>

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<p>c. Demonstrate the use of scientific inquiry and methods to formulate, conduct, and evaluate laboratory investigations (e.g., hypotheses, experimental design, observations, data analyses, interpretations, theory development). (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual–Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>
<p>d. Organize data to construct graphs (e.g., plotting points, labeling x-and y-axis, creating appropriate titles and legends for circle, bar, and line graphs) to draw conclusions and make inferences. (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual–Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>
<p>e. Evaluate procedures, data, and conclusions to critique the scientific validity of research. (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual–Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>
<p>f. Formulate and revise scientific explanations and models using logic and evidence (data analysis). (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual–Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>
<p>g. Collect, analyze, and draw conclusions from data to create a formal presentation using available technology (e.g., computers, calculators, SmartBoard, CBL's, etc.) (DOK 3)</p>	<p>See the following ancillary materials to meet this objective. <i>Laboratory Manual for Hole's Essentials of Human Anatomy and Physiology</i> <i>Anatomy and Physiology Manual–Fetal Pig</i> <i>Physiology Interactive Lab Simulations</i></p>
<p>LIFE SCIENCE</p>	
<p>2. Demonstrate an understanding of the basic organization of the body.</p>	
<p>a. Apply and relate appropriate anatomical terms to the body in anatomical position. (DOK 1)</p> <ul style="list-style-type: none"> • Relationship of body parts 	<p>Student Edition: 14-18</p>
<ul style="list-style-type: none"> • Major cavities and essential organs 	<p>Student Edition: 8-10 See also <i>Reference Plates 23-29</i></p>

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b. Explain how specific mechanisms (e.g., feedback, transport, pH, temperature regulation, etc.) maintain homeostasis. (DOK 1)	Student Edition: 5-8, 39, 59, 61-66, 124-125, 294-295, 474-482, 498-501
c. Describe the relationships and interactions of biochemical composition of the human body to body functions. (DOK 2) • Compounds and elements necessary for maintaining life	Student Edition: 5, 39-46, 429-436, 445, 461-462
• Major groups of organic substances in the human body	Student Edition: 41-46, 430-433
• Major types of chemical reactions employed within the organ systems	Student Edition: 37-39, 80-89, 181-184, 461-463, 498-501
• Effects of external factors (e.g., heat, pH, etc.) on enzymatic reactions	Student Edition: 39, 79-80, 502
d. Categorize the relationship of the cell and its functions to the more complex levels of organization within the body. (DOK 2) • Anabolic and catabolic reactions within a human cell	Student Edition: 3, 4, 51-59, 77-78, 80-82, 95
• Four major categories of tissues and their location, structure, and function	Student Edition: 95-102, 104-109
3. Demonstrate an understanding of the structure, functions, and relationships of the body systems.	
a. Identify structures and explain functions of the components of the integumentary system. (DOK 1)	Student Edition: 12, 117-125
b. Research and distinguish among common integumentary system disorders in terms of origin, manifestation, and treatments. (DOK 1)	Student Edition: 122 <i>Clinical Connection</i> 126 <i>Topic of Interest</i> 121, 126
c. Compare the structure and functions of the skeletal system with its relationship to movement. (DOK 1) • Structures which comprise bone	Student Edition: 12, 108-109, 131-135, 138-161
• Difference between endochondrial and intramembranous ossification	Student Edition: 133-135
• Major bones of the axial and appendicular skeleton, noting inherent differences between males and females	Student Edition: 138-161

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<ul style="list-style-type: none"> • Types of joints and their movements 	Student Edition: 161-167
d. Research and draw conclusions about changes in the skeletal system associated with disease, disorder, injury, age, and stress. (DOK 3)	Student Edition: 130, 146, 151, 160, 165 <i>Clinical Connection</i> 169 <i>Topic of Interest</i> 136-137
e. Compare the functions and structures of the muscular system with its relationship to movement. (DOK 1) <ul style="list-style-type: none"> • Major components and functions of skeletal muscle fiber 	Student Edition: 12, 110, 177-180
<ul style="list-style-type: none"> • Major skeletal muscles and the process of contraction 	Student Edition: 181-189, 190, 192-205
<ul style="list-style-type: none"> • Three types of muscles in the body 	Student Edition: 110-111, 177-180, 189-190
f. Research and evaluate the impact of medical technology on muscle physiology and disease. (DOK 3)	Student Edition: <i>Clinical Connection</i> 206 <i>Topic of Interest</i> 186, 196
g. Relate the components of the nervous system to the senses and the functions of the human body systems. (DOK 1) <ul style="list-style-type: none"> • Four types of neurological cells and the functions of each 	Student Edition: 12, 212-219
<ul style="list-style-type: none"> • Conduction of a nerve impulse 	Student Edition: 219-229
<ul style="list-style-type: none"> • Structures and functions of the brain and spinal cord 	Student Edition: 232-242
<ul style="list-style-type: none"> • Divisions of the nervous system (e.g., central nervous system, peripheral nervous system, sympathetic and parasympathetic, etc.) 	Student Edition: 212, 214, 242-253
h. Describe functions of the various sense organs and identify environmental factors that affect their responses. (DOK 1)	Student Edition: 261-284 <i>Clinical Connection</i> 285 <i>Topic of Interest</i> 265
i. Distinguish the location, structure, and functions of the endocrine glands. (DOK 1) <ul style="list-style-type: none"> • Major endocrine glands 	Student Edition: 12, 291, 295-308

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<ul style="list-style-type: none"> • Function of each endocrine gland and the various hormones they generated by each 	Student Edition: 295-308
<ul style="list-style-type: none"> • Negative feedback mechanisms that regulate hormonal secretions. 	Student Edition: 6-7, 294-295, 297, 301, 302, 304, 305, 306-307
j. Research common disorders or diseases of the endocrine system and assess the unique problems associated with diagnoses and treatments. (DOK 3)	Student Edition: 294, 298, 301, 304 <i>Topic of Interest</i> 308-309
k. Identify and discuss the structures and functions of the organs of the digestive system and discuss their relationships to the interaction among the human body systems. (DOK 2) <ul style="list-style-type: none"> • Major organs of the digestive system (e.g., alimentary canal and accessory structures) 	Student Edition: 12, 402, 403, 404-429
<ul style="list-style-type: none"> • Roles of organs in the mechanical and chemical digestion of food and nutrient absorption 	Student Edition: 402, 408, 409, 412-413, 414-415, 418, 422-424
<ul style="list-style-type: none"> • Contents of the alimentary canal and how they are mixed and moved 	Student Edition: 402, 404, 410-411, 414, 425-426, 428-429
<ul style="list-style-type: none"> • Enzymes and gland secretions as related to the absorption of digestion products 	Student Edition: 409, 412-413, 414, 415, 419, 420-421, 422-424
l. Research common disorders or diseases of the digestive system and identify a diagnosis, based upon a given set of symptoms, for a specific disorder. (DOK 3)	Student Edition: 411, 413, 414, 420, 423, 425, 427 <i>Topic of Interest</i> 419, 429, 438
m. Describe the primary functions of the respiratory organs and the relationships between structure and function. (DOK 1) <ul style="list-style-type: none"> • Breathing verses respiration 	Student Edition: 12, 445-455, 457-460
<ul style="list-style-type: none"> • Gaseous exchange between air and blood and mechanisms of gaseous transport by the blood 	Student Edition: 460-463
n. Research to describe various diseases commonly affecting normal respiratory function and assert environmental and social factors which may contribute to the incidence of disease. (DOK 2)	Student Edition: 444, 446, 448, 455, 460 <i>Genetics Connection</i> 464 <i>Topic of Interest</i> 456

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<p>o. Demonstrate an understanding of the structures and functions of the circulatory system and their role in maintaining homeostasis. (DOK 2)</p> <ul style="list-style-type: none"> • Blood types and the four parts of blood in terms of morphology, function and origin 	<p>Student Edition: 12, 318-335, 340-353, 355-357</p>
<ul style="list-style-type: none"> • Pulmonary and systemic circulation 	<p>Student Edition: 340, 345-346, 362-370</p>
<ul style="list-style-type: none"> • Systolic and diastolic pressures in relationship to cardiovascular health 	<p>Student Edition: 357-361 <i>Topic of Interest</i> 361</p>
<p>p. Investigate and describe the social and economic impact of technological advances in medical treatment on cardiovascular disorders. (DOK 3)</p>	<p>Student Edition: 339, 346 <i>Clinical Connection</i> 373 <i>Topic of Interest</i> 354</p>
<p>q. Describe and discuss the structures and functions of the lymphatic system and the relationships to the circulatory system and immunity. (DOK 1)</p> <ul style="list-style-type: none"> • Major lymphatic organs and pathways 	<p>Student Edition: 12, 377-383</p>
<ul style="list-style-type: none"> • Functions of lymph nodes, lymphocytes, immunoglobulins, thymus, and spleen 	<p>Student Edition: 12, 378, 380-383, 385-386</p>
<ul style="list-style-type: none"> • Types of immunity and immune responses 	<p>Student Edition: 383-388, 390-392</p>
<p>r. Research and describe common lymphatic disorders and present conclusions about the effectiveness of available treatment options. (DOK 3)</p>	<p>Student Edition: <i>Clinical Connection</i> 396 <i>Genetics Connection</i> 394-395 <i>Topic of Interest</i> 389</p>
<p>s. Explain the role of the structures and functions of the urinary system as they relate to the formation, composition and elimination of urine. (DOK 1)</p>	<p>Student Edition: 14, 470-486</p>
<p>t. Research and describe the treatments of common urinary system disorders. (DOK 1)</p>	<p>Student Edition: 469, 472, 477, 482, 485 <i>Clinical Connection</i> 486</p>

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u. Identify and discuss the locations, structures, and functions of the major components of the male and female reproductive systems. (DOK 1) <ul style="list-style-type: none"> • Role of hormones in maturation and reproduction 	Student Edition: 14, 298, 304, 508-516, 518-526
<ul style="list-style-type: none"> • Development of a fetus. 	Student Edition: 539-543, 545-554
v. Research common reproductive diseases and disorders and justify the need for continued research in the diagnosis and treatment of reproductive system diseases. (DOK 3)	Student Edition: 531, 533 <i>Clinical Connection</i> 533 <i>Topic of Interest</i> 513, 517, 528-529, 543, 550-551